

भारत सरकार

GOVERNMENT OF INDIA

केंद्रीय लोक निर्माण विभाग

CENTRAL PUBLIC WORKS DEPARTMENT

Name of Work: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal.

NIT

NIT NO. 04/SE/Barasat/CPWD/2026-27-Recall 1

O/o THE SUPERINTENDING ENGINEER, BARASAT
CPWD, BARASAT, NIZAM PALACE, KOLKATA – 700020

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Name of Work: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal

NIT No: **04/SE/Barasat/CPWD/2026-27-Recall 1**

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Certified that this NIT contains Page No. 01 to 108 (One to One Hundred and Eight) pages only including the cover page)

Assistant Engineer-I
O/o EE, Barasat-I, CPWD,
Salt Lake, Kolkata

Executive Engineer
Barasat-I, CPWD
Salt Lake, Kolkata

Assistant Engineer (Admin)
O/o SE-Barasat, CPWD,
Nizam Palace, Kolkata

COMPOSITE NIT

NIT No.	**04/SE/Barasat/CPWD/2026-27-Recall 1**
Name of Work	Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal
Estimated Cost	**₹ 1,73,34,678.00**
Earnest Money	**₹ 3,46,694/-**
Performance Guarantee	**(a) 5 % of the Tendered Value or Estimated Cost Put to Tender (ECPT) (whichever is higher)** **(b) Where the tendered amount is less than eighty percent (80%) of the estimated cost put to tender (ECPT), the Performance Guarantee, in addition to the requirement as under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount**
Security Deposit	**2.5% of tendered amount**
Time Allowed	**6 (Six) Months**

This NIT for work amounting to **₹ 1,73,34,678.00 (Rupees One Crore Seventy-Three Lakh Thirty-Four Thousand Six Hundred and Seventy-Eight only)** is hereby approved

Assistant Engineer-I
O/o EE, Barasat-I, CPWD,
Salt Lake, Kolkata

Executive Engineer
Barasat-I, CPWD
Salt Lake, Kolkata

Assistant Engineer (Admin)
O/o SE-Barasat, CPWD,
Nizam Palace, Kolkata

Superintending Engineer - Barasat
CPWD, Nizam Palace, Kolkata

PART – A
General Information

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING
(FORMING PART OF TENDER DOCUMENT AND TO BE POSTED ON WEBSITE)

The Executive Engineer, Barasat - I, CPWD, 3rd Floor, E-Wing, CGO Complex, DF Block, Salt Lake, Kolkata – 700064 (Mobile No. 9432932824; email: eebcd1cpwdsaltlake@gmail.com) on behalf of President of India invites online percentage rate bids from the approved and eligible contractors of CPWD enlisted in appropriate class in composite category for the following work(s):

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, EMD, copy of receipt for deposition of original EMD and other documents as specified in the NIT	Time and date of opening of Bid
1	2	3	4	5	6	7	8
1	**04/SE/Barasat/CPWD/2026-27-Recall 1**	Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal	**₹ 1,73,34,678.00**	**₹ 3,46,694/-**	**6 (Six) Months**	**03 / 11 / 2026 up to 03:00 PM**	**03 / 11 / 2026 up to 03:30 PM**

1 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.

2 Information and Instructions for bidders posted on website shall form part of bid document.

3 The bid document consisting of plans, specifications, the schedule of quantities of various types of work 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.

4 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 Commercial Banks towards EMD in favour of Executive Engineer as mentioned in NIT**,** receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing

EE / AE), CPWD and other documents as specified. EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid / tender. EMD made / issued from the account other than that of the bidder/ tenderer submitting the bid, shall not be accepted.

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 available on download section of If needed they can be imparted training on online bidding process as per details available on the website 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 instructions 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 in the prescribed column(s) 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.

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

I Insurance Surety Bonds / Demand Draft / Account Payee Banker's Cheque / FDR / Bank Guarantee of any Commercial Bank against EMD. The EMD is to be drawn in favour of **"Executive Engineer, Barasat Central Division - I, CPWD"**. EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid / tender. EMD made / issued from the account other than that of the bidder / tenderer submitting the bid, shall not be accepted

II Enlistment Order of the Contractor

III GST Registration Certificate if already obtained by the bidder.

If the bidder has not obtained GST registration as applicable, then in such case the bidder 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 of 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."

IV Copy of receipt for deposition of original EMD issued from division office of any Executive Engineer, CPWD

V Undertaking on structural stability and soundness as per prescribed format Form “F”

VI Training Certificate of ERP training in the name of himself or his authorized representative issued by any of the CPWD regional Training Institute (RTIs) at Delhi, Mumbai, Chennai, and Kolkata or by the National CPWD Academy (NCA), Ghaziabad or by any other special training arranged by ERP unit at CPWD Headquarter

Executive Engineer (Civil)
Barasat-I, CPWD
Salt Lake, Kolkata

CPWD – 6

GOVERNMENT OF INDIA

CENTRAL PUBLIC WORKS DEPARTMENT

NOTICE INVITING BID FOR e-TENDERING

1 Percentage Rate Bids are invited on behalf of President of India from approved and eligible contractors of CPWD for the work of "Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal".

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 **₹ 1,73,34,678/-.** This estimate, however, is given merely as a rough guide.

2 Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD 7 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 **6 (Six) 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 as per schedule 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 or withdraw it before last date and time of submission of bid as notified. No post tender modification is allowed by the tenderers except through negotiations, if required. In case, any tenderer does so, the tender will be rejected and the tenderer will be debarred for future tendering in CPWD for two years by the concerned enlistment authority (in case of CPWD enlisted contractor) and by the concerned SE / CE (in case of non-enlisted contractor).

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 Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Banker's Cheque or Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of Commercial Banks (**Executive Engineer, Barasat Central Division - I, CPWD**) 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. EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid / tender. EMD made / issued from the account other than that of the bidder / tenderer submitting the bid, shall not be accepted.

This receipt shall also be uploaded to the e-tendering website by the intending bidder upto the specified bid submission date and time.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, 50% of earnest money or ₹ 20 lakh, whichever is less, shall have to be deposited in the 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 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.

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 PM on 03/11/2026**

9 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 tenderer in the office of bid opening authority.

(iv) If a tenderer quotes nil rates against each time 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.

(v) The bidder does not upload the scanned copy of the Training Certificate of ERP training in the name of himself or his authorized representative issued by any of the CPWD regional Training Institute (RTIs) at Delhi, Mumbai, Chennai, and Kolkata or by the National CPWD Academy (NCA), Ghaziabad or by any other special training arranged by ERP unit at CPWD Headquarter.

10 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 and program chart (Time and Progress) within the period specified in Schedule F.

11 **The description of the work is as follows:**

Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal.

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 bidders 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.

12 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.

13 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.

14 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.

15 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 as 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.

16 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.

17 The bids for the work shall remain open for acceptance for a period of Thirty (30) days from the date of opening of bids.

(i) If any tenderer withdraws his tender within 7 days after last date and time (24 hours basis) 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 after expiry of 7 days after last date and time (24 hours basis) 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) Withdrawal of the tender, by the tenderer, shall only be made through e-tender portal. Any other method i.e. through letter or email etc. shall not be considered.

(iv) 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.

18 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:

18.1 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.

18.2 Standard C.P.W.D. Form 7 or other Standard C.P.W.D. Form as applicable

19 For Composite Bids:

19.1 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.

29.2 The bid document will include following 4 (four) components:

Part A: CPWD-6, CPWD-7 including Schedule A to F for major and minor components of the work, Standard General Conditions of Contract for CPWD 2023 (Construction) as amended / modified up to last date of submission of bid, Form of Bank Guarantee for Earnest Money Deposit / Performance Guarantee / Security Deposit / Mobilisation Advance, Form F, Proforma for Receipt of Deposit of Earnest Money Deposit, Form of Application by the Contractor for

seeking Extension of Time, Form of Application of the Contractor for seeking Rescheduling of Milestones.

Part B (Civil Works): Special Conditions, Special Conditions for Green Building, Particular Specifications and Special Conditions for Cement, Special Conditions for Steel Reinforcing Bars, Additional Conditions and Particular Specifications for RCC Works, Particular Specifications and Additional Conditions for Water Proofing Work & Pile Foundation, Conditions for Water, Particular Specifications for Aluminium Work, Guarantee for Aluminium Work, Fire Check / Rated Door, Annexure A1, A2 & A3 and List of Approved Material (Civil).

Part C (Schedule of Quantity): Schedule of Quantity (Civil), General Abstract and Proforma for Quoting Rates.

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

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

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

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

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

19.8 The main contractor has to associate agencies for specialised 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).

19.9 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 specialised 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.

19.10 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 new contractor associated by him.

19.11 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.

19.12 (A) 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.

(B) 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.

20 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 (Mobile No. – 9432932824; email: eebcd1cpwdsaltlake@gmail.com) or ERP Helpline No. 18001803286 or email id 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.

21 In case of reduction in scope of work no claim on account of reduction in value of work, loss of expected profit, consequential overheads etc. shall be entertained.

22 Goods & Service Tax (GST), construction Worker's Welfare Cess, Education Cess, etc. shall be payable by the contractor and CPWD will not entertain any claim whatsoever in respect of same.

23 GST or any other tax applicable in respect of inputs procured by the contractor for this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same. However, component of GST at time of supply of service (as provided in CGST Act 2017) provided by the contract shall be varied if different from that applicable on the last date of receipt of tender including extension if any.

24 The ESI and EPF contribution on the part of employer in respect of this contract shall be paid by the contractor. These contributions on the part of the employer paid by the contractor shall be reimbursed by the Engineer-in-Charge to the contractor on actual basis. The applicable and eligible amount of EPF & ESI shall be reimbursed preferably within 7 days but not later than 30 days of submission of documentary proof of payment provided same are in order.

Executive Engineer (Civil)
Barasat-I, CPWD
Salt Lake, Kolkata

CPWD – 7

GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT

PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

(A) Tender for the work of: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal

(i) To be uploaded by **3:00 P.M. on 03/11/2026** to / upload at https://etender.cpwd.gov.in.

(ii) To be opened in presence of tenderers who may be present **at 3:30 P.M. on 03/11/2026** in the office of the Executive Engineer (Civil), Barasat - I, 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, drawings 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 **Thirty (30) days** from the due date of opening of bids and not to make any modification in its terms and conditions.

I / We have deposited EMD for the prescribed amount 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 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 & 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:

Witness: (Signature of Contractor)

Address:

Occupation: (Postal Address)

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) _____

For & on behalf of the President of India.

Signature: ___ _____

Dated: ____ / _____ / 20 _____

Designation: _____

PROFORMA OF SCHEDULES (A to F)

SCHEDULE 'A'

Schedule of quantities for Civil works are enclosed: **Page - 103 to 106**

SCHEDULE 'D'

Extra schedule for specific requirements / document for the work, if any — Nil

SCHEDULE 'E'

Reference to General Conditions of Contract	GCC for CPWD 2023 Construction Works as amended / modified upto last date of submission of tender
Name of Work:	Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal
Estimated cost of work	**₹ 1,73,34,678.00**
Earnest money	₹ 3,46,694/-
Performance Guarantee	(a) 5 % of the Tendered Value or Estimated Cost Put to Tender (ECPT) (whichever is higher). (b) Where the tendered amount is less than eighty percent (80%) of the estimated cost put to tender (ECPT), the Performance Guarantee, in addition to the requirement as under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount
Security Deposit	2.5 % of tender value

SCHEDULE 'F'

General Rules & Directions:

1	Officer inviting tender	:	Executive Engineer (Civil), Barasat – I, CPWD, Salt Lake, Kolkata
2	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 per Clauses 12.2 & 12.3
3	Definitions	:	
(i)	Engineer-in-Charge (Civil)	:	Executive Engineer (Civil), Barasat – I, CPWD, Salt Lake, Kolkata or successors thereof
(ii)	Accepting Authority	:	Superintending Engineer, CPWD, Barasat or successor thereof
(iii)	Percentage on cost of materials and	:	15%

	labour to cover all overheads and profits	
(iv)	Standard Schedule of Rates	DSR 2023 as modified & corrected up to last date of submission of tender (whether correction vide latest circulars are incorporated or not in this document)
(v)	Department	Central Public Works Department
(vi)	Standard CPWD contract Form GCC 2020, CPWD Form 7 / 8 as modified & corrected upto last date of submission of bids	CPWD Form 3 and GCC CPWD 2023 Construction Works as modified & corrected up to 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	3 Days
(ii)	Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above	3 Days

Clause 2

Authority for fixing compensation under Clause 2	Superintending Engineer, CPWD, Barasat or successor thereof

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start	3 Days or date of handing over of site whichever is later

Milestone(s) as per table given below

Sl. No.	Description of Milestone (Physical)	Time allowed (from date of start)	Amount to be with-held in case of non-achievement of milestone
(A)	(B)	(C)	(D)
1	a) Submission of Completion Program including critical path analysis, mobilization and setting up of site infrastructure like Site Office, Site Lab, access road, etc., obtaining labour licence and quarry permits, mobilisation of manpower and tools and plants, collection of centering and shuttering materials of minimum 100 sqm, completion of barricading as per requirement, completion of Concrete Mix Designs b)	2 Months	1.5% of composite tendered cost

	dismantling, stacking of existing fencing posts, barbed wires, c) completion of foundation & retaining wall of 105 m length of compound wall and d) approval of brands and models of all materials and procurement of all materials for Milestone 2		
2	a) Completion of 105 m of compound wall upto RCC coping including plastering and fixing of Y angle iron posts, b) Completion of all works of compound wall up to plinth level for next 100 m and c) procurement of all materials	3 Months	1% of composite tendered cost
3	a) Completion of 205 m of compound wall upto RCC coping including plastering and fixing of Y angle iron posts and b) Completion of all work of compound wall up to plinth level for full length	4 Months	1% of composite tendered cost
4	Completion of compound wall for full length upto RCC coping including plastering and fixing of Y angle iron posts, fixing of concertina coil for 205 m length	5 Months	1% of composite tendered cost
5	a) Fixing of concertina coil for full length, b) Completion of all painting works and c) completion of entire work as per the full scope of the Agreement including cleaning, removal of all site infrastructure and scraps and wastages in all respect	6 Months	0.5% of composite tendered cost

Withheld amount shall be released if and when subsequent milestone is achieved within respective time specified. The main contractor will ensure that electrical components of the work are executed in time without giving any chance for slippage of milestone an account of delay in execution of associated electrical works by him. However, in case milestones are not achieved by the contractor for the work, the amount shown against milestone shall be withheld by the Engineer-In-Charge of the respective components.

Note: Intending bidder may submit phasing of activities / milestones on the basis of their resources and methodology at the time of tendering corresponding to physical milestones / stages indicated in the above table. These shall be formed part of the agreement after approval of the accepting authority.

Time allowed for execution of work — 6 (Six) Months;
Time shall be Essence of the Contract and the work is to be completed on Time

Authority to Decide:

Extension of time — Executive Engineer (Civil), Barasat – I, CPWD, Salt Lake, Kolkata or successors thereof

Rescheduling of milestones — Superintending Engineer, CPWD, Barasat or

	successor thereof
Shifting of date of start in case of delay in handing over of site	Superintending Engineer, CPWD, Barasat or successor thereof

PROFORMA OF SCHEDULES (CLAUSE 5)

Clause 5.1 The Contractor shall submit a Time and Progress chart for each mile stone as soon as possible but within 7 days of issue of letter of award of work. Such chart shall be made in due consideration of the Schedule of Handing over of site as specified in the Schedule F (**Annexure-A).** The Engineer-in-Charge may within 7 (seven) days of receipt of such chart, make modifications thereafter, if any, and communicate the approved chart to the contractor, failing which the chart submitted by the contractor shall be deemed to be approved by the Engineer-in-Charge.

Schedule of Handing over of Site (Annexure A)

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	100%	3 Days or date of handing over of site whichever is later
Part B	Portion with encumbrances	0%	--

Schedule of issue of Designs and Drawings (Annexure-B)

Part	Portion of Design	Description	Time period for issue of design reckoned from date of receipt of tenders
Part A	Architectural Drawings	Architectural drawings	3 (Three) days or date of handing over of site whichever is later
Part B	Structural Drawings	Foundation Drawings	10 (Ten) days or date of handing over of site whichever is later
		Superstructure Drawings	10 (Ten) days or date of handing over of site whichever is later

Clause 5.1

Schedule of rate of recovery for delay in submission of monthly progress report	₹ 1,500 per week or part thereof

Clause 5.2

Mode of giving notices for hindrance	Hindrance reporting to be done online through ERP Portal

Clause 5.4

Schedule of rate of recovery for delay in submission of revised programme	₹ 1,000 per day

Clause 6 Applicable –EMB through ERP Portal

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	For Civil Component – ₹ 25.00 lakhs or mutually agreed upon

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 decided compensation on account if contractor fails to submit completion plans	Executive Engineer (Civil), Barasat – I, CPWD, Salt Lake, Kolkata or successors thereof
Compensation	0.1% of accepted tendered value

Clause 10A for Civil Component

List of equipment for field testing laboratory

Sl. No.	Equipment	Number (Min.)
1	Balances	
	(i) 7 Kg to 10 Kg capacity, Semi self-indicating type-accuracy 10 gm	1 No.
	(ii) 500 gm capacity, semi self-indicating type-accuracy 1 gm	1 No.
	(iii) Pan Balance – 5 Kg capacity accuracy 1 gm	1 No.
2	Sieve as per IS 460-1962	
2.1	I.S. sieves – 450 mm internal dia., of sizes 100 mm, 80 mm, 63 mm, 50mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm, complete with lid and pan	2 Set
2.2	I.S. sieves – 200mm internal dia. (brass frame) consisting of 2.36mm, 1.18mm, 600 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns, with lid and pan	2 Set
3	Sieve Shaker capable to handle 200 mm dia. - 300 mm dia. sieves, manually operated with timing switch assembly	1 No.
4	Graduated Measuring Cylinders 200 ml capacity	2 Nos.
5	Enamel Trays (for efflorescence test for bricks)	

5.1	(i) 300 mm x 250 mm x 40 mm	2 Nos.
5.2	(ii) Circular plates of 250 mm dia.	2 Nos.
6	Universal Testing Machine	1 No.
7	Steel tapes – 5 m	4 Nos.
8	Vernier Callipers	2 Nos.
9	Micrometer screw 25 mm gauge	1 No.
10	A good quality plumb bob	3 Nos.
11	Spirit level, minimum 30 cm long with 3 bubbles for horizontal vertical	3 Nos.
12	Wire Guage (circular type) disc	1 No.
13	Foot rule	1 No.
14	Long nylon thread	3 Nos.
15	Magnifying glass	1 No.
16	Screw driver 30 cm long	2 Nos.
17	Ball pin hammer, 100 gm	1 Nos.
18	Plastic bags for taking samples	4 Nos.
19	Moisture meter for timber	1 No.
20	Ovens-electrically operated, thermostatically controlled upto 110°C - sensitivity 1°C	1 No.
21	Equipment for slump test- Slump cone, steel plate, tamping rod, steel scale, scoop	1 Set
22	100 tonnes compression testing machine, electrical-cum manually operated	1 No.

Clause 10B (i)

Whether Clause 10B (i) shall be applicable **Applicable**

Clause 10B (ii)

Whether Clause 10B (ii) shall be applicable **Not Applicable**

Clause 10C **Not Applicable**

Clause 10CA **Not Applicable**

Clause 10CC **Not Applicable**

Clause 11

Specifications to be followed for execution of work

Civil Work CPWD Specifications 2019 (Reprint) Volume – I & II with corrections slips up to last date of submission of bid

Note:

1) The above Specifications shall be applicable with correction slips up to the last date of submission / uploading of bid and amendments thereof.

2) Wherever CPWD Specifications are not available, works shall be executed as per Special Conditions, Particular Specifications, Relevant BIS Codes and terms and conditions mentioned in the NIT. Where no specifications or BIS Code is available, Manufacturer's Specifications shall be followed.

3) The direction of the Engineer-in-Charge shall be followed in absence of the above.

Clause 12:

Type of work	**Original work**	
12.2 & 12.3	Deviation Limit beyond which Clauses 12.2 & 12.3 shall apply for building work (i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items) (ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items	100%

Clause 16

Competent Authority for deciding reduced rates	Superintending Engineer, CPWD, Barasat or successor thereof

Clause 18

List of Mandatory Machinery, Tools & Plants to be deployed by the Contractor at Site

Sl. No.	Machinery, Tools & Plants	Quantity
1	Excavator (various capacity)	1 No.
2	Concrete Batching Plant (10 cum / hour)	1 No.
3	Needle Vibrator (40 / 60 mm)	4 Nos.
4	Drilling Machine	1 No.
5	D.G Set of required capacity	As per requirement
6	RO Plant and Iron Removal Plant	As per requirement
7	Total Station	1 No.
8	Minimum Steel shuttering to be provided by the agency	100 sqm
9	Water Pump set for curing	2 Nos.
10	Mortar Mixture machine hopper type – 1 bag capacity	1 No.
11	Screeners for sand	3 Nos.
12	Any other machinery as required for completion of the work as per decision of Engineer-in-Charge	As per requirement
Note: (1) The above list is only indicative and not exhaustive and is for general guidance. The bidder may be required to deploy more T&P as per requirement of work at any stage at this own cost & nothing extra whatsoever on this amount shall be paid. This includes equipment for arrangement of concrete		

from RMC producing plants also.

(2) The equipment, T&P and machinery shall be kept in good working condition.

(3) Equipment like concrete mini batching plant, concrete pump, excavators, roller, polishing machine, etc. shall be allowed to be moved away from the site when the same are no longer required at site of work in the opinion of Engineer-in-Charge.

(4) In addition to above list, contractor is bound to bring at site any test equipment for any item of work at his own cost, which Engineer-in-Charge may direct him. Nothing extra shall be paid in this regard. Decision of Engineer-in-Charge in this regard shall be final and binding.

(5) If the contractor fails to comply such directions within time specified by the Engineer-in-Charge, the same shall be brought to site by Department at risk and cost of contractor. The expenditure thus incurred shall be deducted from the dues of the contractor.

Clause 19 – Labour laws to be complied by the Contractor

Competent authority for deciding penalty	Executive Engineer (Civil), Barasat - I, CPWD, Salt Lake, Kolkata or successors thereof
Clause 19C	₹ 1,000/- for each default
Clause 19D	₹ 1,000/- for each default
Clause 19G	₹ 1,000/- per day for each default (subjected to maximum of 5% of the contract value)
Clause 19K	₹ 1,000/- per tradesman per day

Clause 25

Conciliator for settlement of disputes	Special Director General, CPWD, Kolkata or his successor thereof
Arbitrator Appointing Authority	Superintending Engineer, CPWD, Barasat or successor thereof
Place of Conciliation	Kolkata
Place of Arbitration	Kolkata

Clause 32

Requirement of Technical Representative(s) and Recovery Rate

Sl. No.	Minimum Qualification of Technical Representative	Designation of Technical Staff	Minimum experience in years	Number (of major + minor component)	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 32 (i)	
					Figures	Words
1	Graduate Engineer or Diploma Engineer	Project Manager cum planning / Quality / Site / Billing Engineer	2 or 5 respectively	1	₹ 15,000/- Per Month	Rupees Fifteen Thousand per Month
Note:						

1. In addition to above, the Main Contractor / Specialized Firms engaged by the Main Contractor shall deploy sufficient number of experienced engineers / technicians and work force along with tools and plants required for safe execution of various operations / activities. For slow progress and any untoward incident, the main Contractor shall be held responsible.
2. Specialized technical staffs for execution of components such as plumbing, water proofing, fire-fighting, etc. shall be deployed as per requirement of work.
3. Assistant Engineers retired from Government services who are holding Diploma will be treated at par with Graduate Engineers. Diploma holder with minimum 10 years relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.
4. The contractor shall submit a certificate of employment of the technical representative(s) (in the form of copy of Form -16 or CPF deduction issued to the Engineers employed by him) along with every account bill / final bill and shall produce evidence if at any times so required by the Engineer-in-charge.

Clause 38

(i) (a) Schedule / Statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2023 with corrections slips up to last date of submission of bid

(ii) Variations permissible on theoretical quantities

(a)	Cement	
	For works with estimated cost put to tender more than ₹ 25 lakh	2 % plus / minus
(b)	Bitumen All Works	2.5% plus & only & nil on minus side
(c)	Steel Reinforcement and structural steel sections for each diameter, section and category	2% plus / minus
(d)	All other materials	Nil

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 (Civil), Barasat -I, CPWD, Salt Lake, Kolkata on behalf of the President of India (hereinafter called "The Government") has invited bids under NIT No. **04/SE/Barasat/CPWD/2026-27-Recall 1** for "Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal". The Government has further agreed to accept irrevocable Bank Guarantee for ₹…….. (Rupees…….Only) valid upto…… (date)* as Earnest Money Deposit 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.

OR**

Whereas the Executive Engineer (Civil), Barasat -I, CPWD, Salt Lake, Kolkata on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing No ..... with .....(name and address of contractor) ……(hereinafter called "the contractor") for execution of work of "Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal". The Government has further agreed to accept an irrevocable Bank Guarantee for ₹…… (Rupees……. Only) valid upto….. (date)* as Performance Guarantee / Security Deposit / Mobilization Advance from the said contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

2 We,…… indicate the name of the bank) ..... (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. 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, our liability under this Bank Guarantee 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 shall have no claim against us for making such payment.

5 We, ……. (indicate the name of the Bank)…….., further agree 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 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

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 or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor 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.

6 We, …… (indicate the name of the Bank)…….., further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.

7 This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

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 Bank Guarantee shall be valid up to ……unless 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 …..……..

Witnesses:

1. Signature ……..

Name and address

2. Signature……

Name and address

Authorized Signatory

Name

Designation

Staff Code No.

Bank Seal

FORM "F"

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

Name of Work	Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal
NIT No.	**04/SE/Barasat/CPWD/2026-27-Recall 1**

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)

PROFORMA FOR RECEIPT OF DEPOSITION OF EMD

Receipt of deposition of original EMD

(Receipt No……*……../ date……* ….....)

Name of work: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal

1 NIT No: **04/SE/Barasat/CPWD/2026-27-Recall 1**

2 Estimated Cost: **₹ 1,73,34,678/-**

3 Amount of Earnest Money Deposit: **₹ 3,46,694/-**

4 Last date of submission of bid: upto **03:00 P.M. on 03/11/2026**

1 Name of contractor …..... #

2 Form of EMD …..... #

3 Amount of Earnest Money Deposit …..... #

4 Date of submission of EMD …..... #

(**To be filled by EMD receiving EE)

(EMD should be drawn in favour of **Executive Engineer, Barasat Central Division - I, CPWD)**

Signature, Name & Designation of
EMD receiving officer (EE / AE (P) / AE / AAO)
Along with officer stamp

Notes:

1. The Executive Engineer receiving EMD in original form shall examine the EMD deposited by the bidder and shall issue a receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting EE. The receipt may be issued by the EE / AE(P) / AE / AAO.
2. The original EMD receiving Executive Engineer shall release the EMD after verification from the e-tendering portal https://etender.cpwd.gov.in that the particular contractor is not L-1 tenderer and work is awarded.
3. The tender inviting Executive Engineer will call for original EMD of the L1 tenderer from EMD receiving Executive Engineer immediately.

FORM OF APPLICATION BY THE CONTRACTOR FOR SEEKING EXTENSION OF TIME
PART - I

1. Name of Contractor
2. Name of work as given in the agreement
3. Agreement No.
4. Estimated amount put tender
5. Date of commencement of work as per agreement
6. Period allowed for completion of work as per agreement
7. Date of completion stipulated in agreement
8. Period for which extension of time has been given previously:

	EE's letter No. and Date	Extension granted	
		Months	Days
(a) 1st extension ……..			
(b) 2nd extension ……..			
(c) 3rd extension ……..			
(d) 4th extension ……..			
(e) Total extension previously given…..			

9. Reasons for which extension have been previously given (copies of the previous applications should be attached)
10. Period for which extension if applied for
11. Hindrances on account of which extension is applied for with dates on which hindrances occurred and the period for which these are likely to last.

(a) Serial no.
(b) Nature of hindrance
(c) Date of occurrence
(d) Period for which it is likely to last
(e) Period for which extension required for this particular hindrance
(f) Overlapping period if any, with reference to item
(g) Net extension applied for
(h) Remarks, if any

Total period on account of hindrances mentioned above…… Months …… Days

12. Extension of time required for extra work
13. Details of extra work and the amount involved:

(a) Total value of extra work
(b) Proportionate period of extension of time based on estimated amount put to tender on account of extra work.

14. Total extension of time required for 11 & 12

Submitted to the Sub Divisional Officer ……

Signature of contractor Date:

FORM OF APPLICATION OF THE CONTRACTOR FOR SEEKING RESCHEDULING OF THE MILESTONES

1. Name of contractor
2. Name of work as given in the agreement
3. Agreement no.
4. Estimated amount put tender
5. Date of commencement of work as per agreement
6. Period allowed for completion of work as per agreement
7. Date of completion stipulated in agreement
8. Rescheduling of milestones done previously

Milestone No. Already Rescheduled	EE's Letter No. and Date	Rescheduling Of Milestones Done	
		Original Date	Rescheduled Date
(A) 1st Milestone			
(B) 2nd Milestone			
.....			

Rescheduling of milestone applied for

Milestone No. for Which Rescheduling is Applied	Original / Rescheduled Date	Details and Period of Hindrances	Comments of Executive Engineer	Proposed Rescheduled Date of
(A) 1st Milestone				
(B) 2nd Milestone				
.....				

Submitted to the Sub Divisional Officer Signature of Contractor

Date

PART-B

SPECIAL CONDITIONS

&

PARTICULAR SPECIFICATIONS

FOR

CIVIL WORKS

SECTION 1
SPECIAL CONDITIONS

1.0 **GENERAL**

1.1 The Contractors are advised to inspect and examine the site and its surroundings and satisfy themselves with the nature of site, the means of access to the site, the constraints of space for stacking material / machinery, etc., constraints put by local regulations, if any, weather conditions at site (rainfall, winter / summer temperatures, etc.), general ground / subsoil conditions, etc. or any other circumstances which may affect or influence their bids. The contractors are encouraged to clarify any data or any query that he thinks will affect his rate from the department before opening of the financial bid. No claim, whatsoever, shall be entertained at a later date for any errors found, on plea that the information supplied by the Department in the tender is insufficient or on plea that the assumption of the bidder at the time of the bidding varied from the facts.

1.2 The Contractor shall, if required by him, before submission of the tender, inspect the drawings and tender documents carefully**.** The department shall not bear any responsibility for the lack of knowledge and also the consequences, thereof to the Contractor. The information and data shown in the drawings and mentioned in the bid documents have been furnished, in good faith, for general information and guidance only. The Engineer-in-Charge, in no case, shall be held responsible for the accuracy thereof and / or interpretations or conclusions drawn there from by the Contractor and all consequences shall be borne by the Contractor. The Engineer in charge shall have right to change part or full drawings or specifications in the tender document and resulting variations will be dealt with as per the condition for the same in the agreement. It is presumed that the Contractor shall satisfy himself for all possible contingencies, incidental charges, wastage, bottlenecks, etc. likely during execution of work and acts of coordination, which may be required between different agencies.

1.3 The contractor is to work in the best industry practice and no incidental expense which forms part of execution of any item but are not explicitly mentioned in the item will be considered to be a part of the item and nothing extra will be payable in this regard.

1.4 The work shall be carried out in accordance with the approved architectural drawings, structural drawings & service drawings. Before commencement of any item of work, the contractor shall correlate all the relevant architectural, structural drawings, service drawings, Specifications, etc. issued for the work and approved by the Department and satisfy himself that the information available from there is complete and unambiguous. Only written dimensions shall be followed and the drawing is not expected to be scaled. The discrepancy, if any, shall be brought to the notice of the Engineer-in-Charge before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by commencement of work on basis of a non-coordinated drawing.

The contractor is expected to study the drawing and bring to the notice of the Engineer-in-charge any discrepancy at least one month in advance so that the discrepancy can be resolved without affecting the work. The delay in work due to the failure of the contractor to do so will be considered as a failure on the part of the contractor.

1.5 The contractor(s) shall give to the local body, police and other authorities all necessary notices,

etc. that may be required by law and obtain all requisite licenses for temporary obstructions, enclosures, etc. and pay all fees, taxes and charges which may be leviable on account of these operations in executing the contract.

1.6 The contractor shall ensure that there is no damage to adjoining property. If any such untoward incident happens, he shall be entirely responsible for any consequences besides making good any damages to the adjoining property, whether public or private. He shall supply and maintain lights either for illumination or for cautioning the public at night.

1.7 Proper temporary barricading by fencing with G.I. sheets, shall be carried out by the contractor at the start of work in order to physically define the boundaries of the plot for restricted entry to only those involved in the work and also to prevent any accidents, at the same time without causing any inconvenience to the traffic and the users of the handed over buildings in the adjacent plots. The contractor shall ensure zero disturbances to the adjacent area due to sound or air pollution caused by the site activities.

1.8 Wherever any reference to any Indian Standards occurs in the documents relating to this contract, the same shall be the latest version in force on last date of submission of the bid.

1.9 Any legal or financial implications resulting out of disposal of earth shall be sole responsibility of the contractor.

1.10 Wherever required for the execution of work, all the scaffolding shall be provided and suitably fixed, by the contractor. It shall be provided strictly with steel double scaffolding system, suitably braced for stability, with all the accessories, gangways, etc. with adjustable suitable working platforms to access the areas with ease for working and inspection. Single scaffolding system is strictly prohibited and shall invite necessary action. Double scaffolding shall be designed to take all incidental loads. It should cater to the safety features for workmen. It shall be ensured that no damage is caused to any structure due to the scaffolding.

1.11 The contractor shall be responsible for making arrangement of all temporary structures, stock piles or stores. However, if the contractor intends to use the area inside the campus, then the same has to be got approved in the layout plan. In case of availability of the land, the same will be allotted to the contractor for use till the stipulated date of completion so extended without any levy of compensation as per clause 2. The area used for such temporary structures shall be cleared of within 2 weeks of provisional completion and the area should be restored without a trace of any such structure failing which the same will be done at the risk and cost of the contractor. The decision of the Engineer-in-charge shall be final and binding in this regard.

1.12 The Contractor shall take all precautions to abide by the environmental related restrictions imposed by any statutory body having jurisdiction in West Medinipur as well as prevent any pollution of streams, ravines, river bed and waterways. All waste or superfluous materials shall be transported by the Contractor, entirely to the satisfaction of the Engineer-in-Charge and disposed at designated places only. Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings.

1.13 The works to be undertaken by the contractor shall inter-alia include the following:

(a) The contractor shall at his own cost prepare necessary shop drawing showing details of as constructed shape of the item where ever necessary and get it approved by the Engineer-In-Charge. For aluminium work the contractor shall also give details of sections proposed in his

shop drawing.

(b) Obtaining of Statutory permissions (for carrying out constructions) wherever applicable and required.

(c) Contractor shall prepare all the shop drawings or layout drawings for all the coordinated services and provide them to the Department before starting any work or placing any order of any of the services etc. These shop drawings / layout drawings shall be got approved from Engineer-in-Charge before implementation and this shall be binding on the contractor.

(d) The contractor shall submit material's submittals along with material' sample for approval of Engineer-in-Charge prior to delivery of material at site at least one month or the time required for testing which ever whichever is earlier in advance.

1.14 Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable for extra cement considered in consumption on this account.

1.15 The quoted rate shall be inclusive of all taxes which include royalty, octroi or any other tax under any head or name. However statutory payments that need to be paid to statutory bodies for obtaining statutory approvals would be refunded by the department on production of proper bill and proof of payment. Any tax claims coming from any department of any nature due to the operation of the contract would have to be borne by the contractor failing which it will be settled at the risk and cost of the contractor and the department would not have any responsibility for any interest of late fees that is payable due to delay in any such tax payment. The cost that the department needs to spend in facilitating such payment also would be at the risk and cost of the contractor.

1.16 The contractor is expected to be acquainted with all laws and regulation in force with regard to the work and has to quote his rates accordingly. Ignorance of any provision in law will not be considered an excuse. Further no compensation in time or cost will be done by the department on account of any new law or restriction imposed by statutory bodies not under the control of CPWD other than the ones explicitly mentioned in the General Conditions of Contract.

1.17 The electricity and water required for the work would have to be arranged by the contractor and he will have to bear all the cost for the same. The water used for the work will have to satisfy the relevant IS standards and CPWD will have the liberty to ask for supply from different source or direct to install suitable treatment facility to ensure the water quality meets the standard and nothing extra will be paid by the department. In case, water is sourced from bore wells installed in the Campus, necessary permission shall be obtained from the concerned department in charge of ground water resources. Copy of such permission shall be shared with the department. In case, during course of execution, it is found that the contractor did not obtain the necessary permission and did not pay the necessary fee, department will take necessary action in this regard.

1.18 The contractor is expected to know the natural normal weather pattern of the site and is expected to plan his activities taking into account of the same. No hindrance will be considered in the work for normal weather patterns. However, hindrance will be considered only if extra ordinary bad weather persists.

1.19 The contractor shall submit a proper PERT / CPM chart at the start of the work and identify critical activities and take actions as may be needed to avoid any hindrance to the critical

activities. The contractor shall submit an updated PERT / CPM chart on the 5th of every calendar month explaining reasons for delay if any correlating with hindrances beyond the control of the contractor if any that has happened during the month and get the same approved by the Engineer in Charge. Extension of time will be granted only for hindrances which actually affect the program that is submitted every month and only to that extent the hindrance affects the program. However, if the program is failed due to unexplained hindrances the department might choose to grant extension of time in which case it will be with levy of compensation as per Clause 2 of the agreement. **No RA bill will be processed till such program as mentioned in this condition is submitted by the contractor.**

1.20 For works below ground level the contractor shall keep that area free from water. If dewatering or bailing out of water is required, the contractor shall do the same at his own cost and nothing extra shall be paid except otherwise provided in the tender document.

1.21 The contractor shall ensure proper drainage at site at all times so that water stagnation is avoidable in the best way possible.

1.22 The contractor will be responsible for any theft committed by any of his employees or his labours. The theft will be dealt legally as per procedure however the contractor will be held responsible for losses if any due to such event and care shall be taken to avoid such an event.

1.23 Special thrust should be laid on respecting women working at site or visiting site for any reason. The contractor shall ensure that the labour and employees give utmost respect to women and prevent any untoward action of any sort. The contractor shall note that the office of SE has in place an internal complaints committee to prevent sexual abuse against women at works place as per the relevant act and shall ensure necessary awareness among their employees that the said committee can be contacted if found necessary.

1.24 No tree shall be damaged / removed without obtaining written approval from Engineer in Charge.

1.25 The department owns the site and shall have the right to visit or pass to any location of the site at any time. The department also will have the right to permit free movement of any agency through the site if it is found necessary and the contractor will have no right to prevent the same. The contractor shall extend full corporation in this regard. If so desired by the Engineer in Charge, any temporary structure, stock pile or any facility made by the contractor needs to be relocated, the contractor shall do the same without any extra cost and shall ensure the same is done within 7 days of issue of such order in writing by the Engineer-in-Charge.

1.26 The contractor shall make any temporary construction road as may be needed at his own cost with the approval of the Engineer in Charge. The site might be slushy or muddy at times. The contractor may have to make the same motorable if needed to proceed with the work. Neither any hindrance will be entertained in this regard nor will any extra cost be paid for the same.

1.27 CPWD would be employing other agencies for other works not in the scope of this tender. The contractor shall ensure complete cooperation and coordination with those agencies for which nothing extra shall be paid. The contractor shall incorporate the drawings and details supplied by those agencies and ensure that necessary holes, sleeves or openings are left in the walls or other members as may be necessary during construction so that demolishing is avoided at a later stage. Any hole or sleeve which found necessary after completion of the work due to the absence of advance drawing will be paid for. However, if sleeves, holes or openings are missed out even after submission of advance drawings, it will be executed at the risk and cost of the

contractor.

2 **PREVENTION OF NUISANCE AND POLUTION CONTROL**

2.1 The contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties from pollutants like smoke, dust, noise.

2.2 All site machinery and equipment used at site or outside site by the contractor including vehicles used for transportation shall be compliant with the latest pollution control norms of the relevant stipulating / enforcing authority.

2.3 All the loose material like sand, earth shall be supplied at the site in covered condition to avoid spillage of the materials and to prevent air pollution. Arrangements should be there to ensure all the wheels of all vehicles exiting the site are properly cleaned and no dust or debris of any sort or definitions is spilled over to the campus road or to the public road by any means due to activities at the site. Damage rectification or cleaning of any adjacent property or road that may be required due to the actions of the contractor will be done at the risk and cost of the contractor.

2.4 Waste disposal of all kinds may be done as per the pollution control boards norm and for the purpose of pollution control and sanitation, the stock pile, labour camp or any other temporary space directly linked to the work would be coming under the definition of site even if the same is procured or hired at the contractor own cost.

2.5 Suitable arrangements for treatment or sound insulation shall be made at the cost of the contractor to ensure that no pollution occurs in water, air or via noise due to the activities at site.

3 **SETTING OUT**

3.1 The contractor shall carry out survey of the work area, at his own cost, setting out the layout and fixing of alignment of the building and other bulk service infrastructure in consultation with the Engineer–in-charge & proceed further ensuring full structural continuity. Any discrepancy between architectural drawings and actual layout at site shall be immediately brought to the notice of the Engineer–in-charge. It shall be responsibility of the contractor to ensure correct setting out of alignment. Total station survey instruments only shall be used for layout, fixing boundaries, centre lines, etc.

3.2 The contractor shall submit the initial levels of any area before any earthwork and shall ensure 100% test checking before execution of the work. No earthwork will be measured in the absence of a 100% test checked initial level

3.3 The contractor shall establish, maintain and assume responsibility for grades, lines, levels and benchmarks. He shall report any errors or inconsistencies regarding grades, lines, levels, dimensions, etc. to the Engineer–in-Charge before commencing work. Commencement of work shall be regarded as the contractor's acceptance of such grades, lines, levels and dimensions and no claim shall be entertained at a later date for any errors found.

3.4 If at any time, any error appears due to grades, lines, levels and benchmarks during the progress of the work, the contractor shall, at his own expense rectify such error, if so required, to the satisfaction of the Engineer–in-charge.

3.5 The contractor shall protect and maintain temporary / permanent benchmarks at the site of work throughout the execution of work. These benchmarks shall be got checked by the Engineer-in-Charge or his authorized representatives. The work at different stages shall be checked with

reference to bench marks maintained for the said purpose.

3.6 The approval by the Engineer-in-charge, of the setting out by the contractor, shall not relieve the Contractor of any of his responsibilities and obligation to rectify the errors / defects, if any, which may be found at any stage during the progress of the work or after the completion of the work.

3.7 The contractor shall be entirely and exclusively responsible for the horizontal, vertical and other alignments, the level and correctness of every part of the work and shall rectify effectively any errors or imperfections therein. Such rectifications shall be carried out by the Contractor at his own cost to the entire satisfaction of the Engineer– in-Charge.

3.8 The rate quoted by the contractor is deemed to be inclusive of site clearance, setting out work (including marking of reference points, centre lines of buildings), construction and maintenance of reference bench mark(s), taking spot levels, construction of all safety and protection devices, barriers, barricading, signage, labour safety, labour welfare and labour training measures, preparatory works, working during monsoon, working at all depths, height and location, etc, any extra excavation of earth wherever required and any other incidental works required to complete this work.

3.9 **INTEGRATED SERVICE DRAWINGS:** Before taking up the work, the contractor shall do integration and coordination of various civil, electrical, mechanical and other services involved in the construction of building so that no conflict occurs while execution of works of various services at site and also provide 2-D drawings of integrated drawings for various civil and electrical services showing details of lay out plan including sectional elevations. Contractor shall plan and mobilize his resources as per the integrated drawings and as per the site conditions to facilitate convenient execution, installation as well as maintenance of these services. Nothing extra shall be payable on this account.

4 **PRESERVATION AND CONSERVATION MEASURES**

4.1 Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services, if any, encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. Even in case of accidental damage, the responsibility of repair / replacement including removal of leaked / spilled water, sewage etc. will be on the contractor and shall be repaired / replaced at his own cost.

4.2 Existing services shall not be diverted permanently until they are interfering directly with the layout. Notwithstanding anything to the contrary contained herein, the Contractor shall ensure that the respective entities owning the existing roads, right of way, level crossings, structures, or utilities on, under or above the site are enabled by it to keep them in continuous satisfactory use, if necessary, by providing suitable temporary diversions with the Authority of the controlling body of that road, right of way or utility. All temporary supports and other measures required to protect and maintain the services during construction period as per direction of Employer, shall be deemed to be included in the quoted rate / amount of the contractor and nothing extra shall be paid on this account. In case the same are to be removed and diverted, expenditure incurred in doing so shall be payable to the contractor. The contractor shall work out the cost, get the same approved by Engineer-in-Charge before taking up actual execution. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.

4.3 A site laboratory with the minimum equipment as specified in Schedule F / in this bid document

shall be established, made functional and maintained within one month from the award of work as per attached list without any extra cost to the department. In case any equipment is not available in the site laboratory during the inspection of the work by the department, the same shall be procured by the department and set up at the site laboratory at the risk and cost of the contractor. The laboratory shall be properly lit and maintained in a clean and hygienic condition at all times.

5 **SPECIALISED AGENCIES**

5.1 The contractor shall engage specialized agency for carrying out specialized item of work as per condition of contract. The contractor is encouraged to finalize and engage the specialized agency with the requisite eligibility before tendering for the work. The contractor shall submit the name of the agency along with their working experience, presentation on method statement and materials being used for execution of such items, etc. to Engineer-in-Charge for approval within 1 month of award of work except for the piling agency whose details may be submitted along with the performance guarantee. Contractor shall submit the proposal (along with work experience certificate issued by competent authority) of only those specialised agencies who have work experience of satisfactorily completion of similar works as per criteria mentioned in the contract. The contractor will have the liberty to change the specialized agency if found necessary but only with the explicit written consent of the respective Engineer-in-Charge in which case the engineer in charges decision regarding eligibility criteria required for the agency based on balance work and practicality of changing the agency based on balance work will be final and binding.

5.2 It shall be the responsibility of main contractor to sort out any dispute / litigation with the Specialized Agencies without any time & cost overrun to the Department. The main contractor shall be solely responsible for settling any dispute / litigation arising out of his agreement with the Specialized Agencies. The contractor shall ensure that the work shall not suffer on account of litigation/ dispute between him and the specialized agencies / sub-contractor(s). No claim of hindrance in the work shall be entertained from the Contractor on this account. No extension of time shall be granted and no claim whatsoever, of any kind, shall be entertained from the Contractor on account of delay attributable to the selection / rejection of the Specialized Agencies or any dispute among them. An undertaking shall be submitted from specialized agency duly signed by the main agency that CPWD will not be party to any dispute that might occur between specialized agency and main agency.

5.3 Engineer-in-Charge will have power to remove any specialized agency due to bad behaviour, bad workmanship or any other conditions arising out of the work. The decision of the Engineer-in-Charge shall be final and binding. The contractor after receiving of such order from Engineer-in-Charge shall associate other specialized agency within 1 week. The contractor shall make payment to the specialized agencies / sub-contractor(s) within 1 week of receiving payment from the department.

5.4 Each specialized agency shall be mandated to deploy a single point of contact representative empowered to take decisions and make commitments on behalf of the specialized agency.

6 **RATES**

6.1 The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profiling, establishment of reference bench mark(s), installing various signage, taking spot levels, survey with total station, construction of all safety and protection devices, compulsory use

of helmet, safety shoes and other appropriate safety gadgets by workers, imparting continuous skill enhancement training and other training for all the workers, barriers, preparatory works, construction of clean, hygienic and well-ventilated workers housings in sufficient numbers, working during monsoon or odd season, working in multiple shifts, working at all depths, height, lead, lift, levels and location, making of mock ups as per tender documents, implementation of green building norms to achieve desired Green Plus Rating, etc. and any other unforeseen but essential incidental works required to complete this work. No extension of time for completion of work shall be granted on these accounts.

6.2 No foreign exchange shall be made available by the Department for importing (purchase) of equipment, plants, machinery, materials of any kind or any other items required to be carried out during execution of the work.

6.3 Ancillary and incidental facilities required for execution of work like labour accommodations, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary access / approaches to locations within site during rain / other inclement weather conditions, temporary structure for plants and machinery, water storage tanks, installation and consumption charges of temporary electricity, telephone, water, etc. required for execution of the work, liaison and pursuing for obtaining various No Objection Certificates, completion certificates from local bodies, etc., protection works, testing facilities / laboratory at site of work, facilities for all field tests, for taking samples, etc. during execution or any other activity which is necessary (for execution of work and as directed by Engineer-in-Charge), shall be deemed to be included in rates quoted by the Contractor, for various items in the schedule of quantities. Nothing extra shall be payable on these accounts. Before start of the work, the Contractor shall submit to Engineer-in-Charge, a site / construction yard layout, specifying areas for construction, site office, machinery, material yard, cement & other storage, steel fabrication yard, site laboratory, water tank, concrete batching plant, etc.

6.4 For completing the work in time, the Contractor is expected to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the labourer and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them.

7 SUPERVISION OF WORK

7.1 The Contractor shall depute Site Engineer & skilled workers as required for the work. He shall submit organization chart along with details of Engineers and supervisory staff. It shall be ensured that all decision-making powers shall be available to the representatives of the Contractor at West Medinipur itself to avoid any likely delays on this account. All the minimum staff mandated in the agreement shall be stationed at West Medinipur and shall not take leave from station more than 1 week without the approval of the Engineer-in-Charge. The Contractor shall also furnish list of persons for specialized works to be executed for various items of work.

8 SAFETY PRACTICES

8.1 **WARNING / CAUTION BOARDS**: All temporary warning / caution boards / glow signage display such as “Construction Work in Progress”, “Keep Away”, “No Parking”, diversions & protective barricades, etc. shall be provided and displayed during daytime by the Contractor, wherever

required and as directed by the Engineer-in-Charge. These glow signage and red lights shall be suitably illuminated during night also. The Contractor shall be solely responsible for damage and accident caused, if any, due to negligence on his part. Also, he shall ensure that no hindrance, as far as possible, is caused to general traffic during execution of the work. **If the contractor fails to provide the warning / caution boards within 7 days of written direction of Engineer-in-Charge or his authorized representative, the same shall be fixed by the department at the risk and cost of the contractor**.

8.2 **SIGN BOARDS**: The Contractor shall provide and erect a display board of size and shape as required and paint over it, in a legible and workman like manner, the details about the salient features of the project, as required by the Engineer-in-Charge. The Contractor shall fabricate and put up a sign board in an approved location and to an approved design indicating name of the project, Client / Owner, Engineer-in-charges, Structural Consultants, Department, etc. besides providing space for names of other Contractors, Sub-Contractors and specialized agencies within 15 days from issue of award letter. Nothing extra shall be payable on this account. **In case of non-compliance / delay in compliance in this, the same shall be fixed by the department at the risk and cost of the contractor**.

8.3 Necessary protective and safety equipment such as helmet, safety shoes, gloves etc. shall be provided to the site engineer(s), supervisory staff(s), labour(s) and technical staff(s) of the contractor and also to the departmental/client officials inspecting the works by the Contractor at his own cost and to be used at site.

8.4 Nylon net (50 x 50 mm aperture and 4mm dia.) at site shall be fixed to hooks, etc., along periphery of building at various levels required and as directed by Engineer-in-charge for safety of the working staff for which nothing extra will be paid on this account.

9 **QUALITY ASSURANCE**

9.1 The proposed building is a prestigious project and quality of work is of paramount importance. Contractor shall have to engage well-experienced skilled labour and deploy modern T&P and other equipment to execute the work. Many items like exposed finish form work, specialized flooring work, polysulphide sealant in expansion joints, silicon sealant with backer rod in structural glazing works, factory made door-window shutters, proper slope maintaining in toilet units, sanitary & water supply installation, water proofing treatment works will specially require engagement of skilled workers having experience particularly in execution of such items.

9.2 Materials used on work without prior inspection and testing (where testing is necessary) and without approval of the Engineer-in-Charge are liable to be considered unauthorized, defective and not acceptable. The Engineer-in-Charge shall have full powers to require the removal of any or all of the materials brought to site by contractor which are not in accordance with the contract specifications or do not conform, in character or quality to the samples approved by the Engineer-in-Charge. In case of default on part of contractor in removing rejected materials, Engineer-in-Charge shall be at liberty to have them removed at the risk and cost of contractor.

9.3 The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material / work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge & contractor shall be bound to replace / remove such sub-standard / defective work immediately. If any material, even though approved by Engineer-in-Charge is found defective or not conforming to specifications, it shall be replaced / removed by the

contractor at his own risk & cost.

9.4 The contractor / associate agency shall extend full cooperation to Third Party Quality Assurance Agencies engaged by the Department for the project during their field visits for arranging the necessary quality assurance tests for materials and the construction works.

9.5 In addition to the supervision of work by Engineer-in-Charge or his representatives, consultants deployed by the CPWD shall also be carrying out regular and periodic inspection of the ongoing activities in the work and deficiencies, shortcomings, inferior workmanship pointed out by them shall be communicated by the Engineer-in-Charge to the contractor. Upon receipt of instructions from Engineer-in-Charge these are also to be made good by necessary improvement, rectification, replacement upto complete satisfaction of Engineer-in-Charge. Special attention shall be paid towards line and level of internal and external plastering, exposed smooth surface of RCC members by providing fresh shuttering plates, rubberized linings to all the shuttering joints, accurate joinery work in wooden doors and windows, thinnest joints in stone / tiling / cladding work, non-hollowness in floor and dado tiles work, protection of scratches over flooring by impounding layer of Plaster of Paris, water tight pipe linings, absence of hollow vertical joints in brick masonry, proper compaction of filled up earth, etc. to achieve quality of international standards and up keeping of quality assurance shall be of paramount importance as such.

9.6 The Contractor shall submit 15 days prior to execution of any item submit a Minimum Quality Assurance Plan (A detailed and complete method statement for the execution, testing and Quality Assurance Plan / procedures for basic materials and such items, to be followed during execution of work) for approval of the Engineer-in-Charge. All the materials to be used in the work, to give the finished work complete in all respects, shall comply with the requirements of the specifications and shall pass all the tests required as per specifications as applicable or such specifications / standards as directed by the Engineer-in-Charge. Any lapse in quality noticed will be got removed and re-built without any notice at the risk and cost of the contractor in the absence of such plan or due to the non-compliance of such plan. All test results for materials used in the work should form part of the said plan.

9.7 All materials and fittings brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-charge which shall be preserved till the completion of the work. Wherever brand / quality of material is not specified in the particular specifications, the contractor shall submit the samples as per list of preferred makes given in the tender documents. For all other items, materials and fittings of ISI Marked shall be used with the approval of Engineer-in-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant specifications or IS codes and use the same only after getting the approval of Engineer-in-Charge.

9.8 The Contractor shall procure and provide all the materials from the manufacturers / suppliers as per the list attached with the tender documents, as per the item description and particular specifications for the work. The equivalent brand for any item other than brand / make mentioned in particular specifications for any item, shall be permitted to be used in the work, only when either the specified make is not available or when the make proposed is matching exactly or exceeds the technical specification of the specified item and the market price of the proposed brand is not lesser than 95% of the market price of the brand specified.

9.9 Bulk delivery of all the materials shall only be made at site after the sample approval of the respective material. All the samples shall be kept in the safe custody of the contractor and shall be produced at demand during the construction period. All the materials shall be brought well in advance as per program finalized with the Engineer-in- Charge so that the sample testing of the same can be done before the execution of the work without delaying the work.

9.10 The contractor shall also provide adequate supporting staff at his cost for carrying out field tests, packaging and forwarding of samples for outside laboratory tests and for maintaining test records.

9.11 The tests, as necessary and where no field laboratory facilities are available, shall be conducted in the laboratory approved by the Engineer–in-Charge. Where field testing is available random samples as desired by the Engineer in Charge shall be send to the laboratory. Whenever a sample is sent to the lab the contractor shall ensure that the sample is sealed and signed by the Engineer-in-Charge or his authorized representative. The sample should be delivered to the respective lab and receipt in this regard should reach the Engineer-in-Charge within 5 days of issue of the letter for testing failing which the test shall be considered null and void and retesting will have to be done. No test result shall be delayed more than 1 month from the date of submission at the lab. If any test result is reported to be missing after the material has reached the lab the sample will be considered to have failed the test result and action will be taken accordingly. The contractor shall arrange for testing in the lab in presence of the representative of the Engineer-in-Charge or Representatives of client or Senior officers of CPWD or representatives of third-party quality assurance team. All testing shall be done in labs of India alone. All the equipment in the field laboratory shall be calibrated as per manufacture specification and an upto date calibration should be displayed alongside the machine in legible and readable format at all times.

9.12 The Contractor shall at his own risk and cost make all arrangements and shall provide all such facilities including material and labour, which the Engineer-in-Charge may require for collecting, preparing, forwarding the required number of samples for testing as per the frequency of test stipulated in the contract specifications or as considered necessary by the Engineer-in-Charge, at such time and to such places, as directed by the Engineer-in-Charge. The contractor shall keep a close watch on the sampling frequency in CPWD specifications and ensure samples are collected and tested as per the sampling frequency.

9.13 The Contractor or his authorized representative shall associate in collection, preparation, forwarding and testing of such samples. In case he or his authorized representative is not present or does not associate him, the result of such tests and consequences there on shall be binding on the Contractor. The Contractor or his authorized representative shall remain in contact with the Engineer-in–Charge or his authorized representative associated for all such operations.

9.14 The testing charges of all materials shall be borne by the contractor including all incidental charges like cost of materials, packing and transportation, etc.

9.15 All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested as per the design conditions before covering and their measurements to be duly test checked by the Engineer-in-Charge or his authorized representative, prior to hiding these items.

9.16 The contractor shall give performance test of the entire installation(s) as per the standing

specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.

9.17 Before painting works the contractor shall inspect the whole building for any possible point dampness or wetness and ensure that no possibility of dampness exist in the building and after painting shall give a warranty bond for painting in the prescribed proforma for a period of 5 years.

9.18 The Contractor shall arrange electricity at his own cost for testing of the various electrical installations as directed by Engineer-in-Charge and for the consumption by the contractor for executing the work. Also, all the water required for testing various electrical installations, fire pumps, wet riser / fire-fighting equipment, fire sprinklers, etc. and also testing water supply, sanitary and drainage lines, water proofing of underground sump, overhead tanks, water proofing treatment, etc. shall be arranged by the contractor at his own cost.

9.19 The contractor shall make available, on request from the Department, the copies of challan, cash memos, receipts and other certificates, if any, vouchers towards the quantity and quality of various materials procured for the work. The contractor shall also provide information and necessary documentation on the name of the Manufacturer, Manufacturer's product identification, Manufacturer's instructions, Warning, Date of Manufacturing and Test Certificates (from Manufacturers for the products of each consignment delivered at site), shelf life, if any, etc., for the Department to ensure that the material have been procured from the approved source and is of approved quality, as directed by the Engineer-in-Charge. Wherever specified, day to day account of receipt of such material shall be maintained at site of work.

9.20 There may be exposed brick work to be executed in the contract. The contractor shall ensure the bricks used in the said works are without any damage to edges and are regular in size and of best quality. The brick work shall be done with the exposed side as the smooth side nothing extra shall be paid for the said additional scaffolding. Flemish bond has to be used in the exposed brick work. The mortar joints have to be uniform and should not have a size variation of more than 3 mm average. Specialized tools as required may be used for this purpose. Closures or bats that are required in the masonry has to be machine cut and should not be cut in crude fashion. The bricks used should have uniform colour. This exposed brick masonry and its pointing shall invariably be done in Portland Pozzalona Cement.

9.21 In case there is any discrepancy in frequency of testing as given in list of mandatory tests and that in individual subheads of work as per CPWD Specifications, higher of the two frequencies of testing shall be followed and nothing extra shall be payable on this account.

9.22 The contractor shall provide documents for 5 years of manufactures warranty from the date of completion for LED light fitting, FANS, and sanitary installations and facilitate smooth coordination between the OEM.

9.23 For the items which will be delivered in Numbers, quantity of the testing samples shall be brought at site along with the bulk load of the material and no testing samples shall be brought separately.

9.24 Testing shall be done for each load of the material brought at site irrespective of the frequency of testing.

10 SUBMISSION AND DOCUMENTATION

10.1 The Contractor shall render all help and assistance in documenting the total sequences of this project by way of photography, slides, audio / video recording using drone videos, etc. The

original films shall be the property of the Department. No copy shall be prepared without the prior approval of the Engineer-in-Charge.

10.2 The Contractor shall display all permissions, licenses, registration certificates, bar charts, other statements, etc. under various labour laws and other regulations applicable to the works, at his site office. He should also keep at site at least one set of BIS Codes and other relevant codes at site and produce the same if asked for by Engineer-in-Charge. In case of non-compliance, these codes will be purchased from the market and actual cost of purchase will be recovered from the next RA Bill of the Contractor.

10.3 The Contractor shall make available five (05) sets of completed Building Drawings (including soft copy of the same), i.e. “As Built Drawings” along with literatures, maintenance manuals, warranty certificates, etc. of various installed fittings, fixtures and equipment for the completed projects. This shall be the prerequisite for payment of final bill.

10.4 The Contractor shall make available five (05) sets of all drawings (including soft copy of the same) of internal & external services i.e. water supply, sanitary line and drainage lines. This shall be prerequisite for payment of final bill. The drawings shall have following information:

(a) Run off for all piping and their diameters including soil, waste pipes and vertical stacks.

(b) Ground and invert level of drainage pipes together with locations of all manholes and connections, up to outfall.

(c) Run off for all water supply lines with diameters, location of control valves, access panels, etc.

(iv) The contractor shall make available four (04) sets of computerized Standard Measurement Books (SMBs) having measurements of the buildings.

(v) The Performance Guarantee shall not be released to the contractor until the aforesaid drawings are submitted to the Engineer-in-Charge.

(vi) Electronic measurement book is introduced. The contractor shall comply with the same as per the direction of Engineer-in-charge. All hidden items shall be got test checked by the representative of the Engineer-in-Charge before hiding the item failing which that item can be considered to have been executed free of cost.

11 PROJECT PROGRAM CHART

11.1 The Contractor shall prepare an integrated program chart including civil, E & M and other services for the execution of work showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfilment of the program as per Clause-5 of the GCC within 15 days from the date of award of work. The Engineer-in-charge may within 30 days thereafter, if required modify, and communicate the program approved to the contractor failing which the program submitted by the contractor shall be deemed to be approved by the Engineer-in-charge. These shall be submitted by the contractor through electronic media besides forwarding hard copies of the same. The integrated program chart so submitted should not have any discrepancy with the physical milestones specified in the tender documents. The program chart should include the following:

(i) Descriptive note explaining sequence of various activities.

(ii) Construction Program prepared on PRIMAVERA / M. S. Projects only, which will indicate resources in financial terms, manpower and specialized equipment for every important stage.

(iii) Program for procurement of materials by the contractor.

(iv) Program for arranging and deployment of manpower both skilled and unskilled so as to achieve targeted progress.

(v) Program of procurement of machinery / equipment having adequate capacity, commensurate with quantum of work to be done within stipulated period, by contractor.

(vi) Program for achieving fortnightly micro milestones and periodic milestones.

(vii) The program chart shall be updated every month accounting for all the hindrance in the work and no new program chart shall be submitted. In the updation the contractor should show the items of work which he failed to execute on time during that month and update the completion program by additional inputs for those items within the same overall completion time. In case the progress of the work is hindered due to the hindrance at site, he shall submit the application of Extension of time within stipulated period (as mentioned in Clause 5 of General Conditions of Contract) of encountering such delay. Please read this along with condition in Sl. No. 1.19 of Special Conditions.

(viii) The submission for approval by the Engineer-in-Charge of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer-In-Charge to take action against the contractor as per terms & conditions of agreement.

11.2 **Submission of Progress Reports**

Apart from the above integrated program chart, the contractor shall be required to submit fortnightly progress report of the work in a computerized form on 1st and 16th of every month. The progress report shall contain the following:

(a) Construction schedule of the various components of the work through a bar chart for the next two fortnights (or as may be specified), showing the micro-milestone / milestones, targeted tasks (including material and labour requirement) and up to date progress. At least 20 digital photographs showing all the parts of construction site along with at least 10 minutes drone video of executions of different items in soft copy has to be submitted in every fortnightly progress report

(b) Progress chart of the various components of the work that are planned and achieved, for the fortnight as well as cumulative up to the fortnight under reckoning, with reason for deviations, if any in a tabular format.

(c) Plant and machinery statement, indicating those deployed in the work.

(d) Man-power statement indicating

(i) Individually names of all staff deployed on work along with their designations.

(ii) No. of skilled workers (trade wise) and total no. of unskilled workers deployed on the work and their location of deployment i.e. blocks.

11.3 **PROJECT REVIEW MEETINGS**

The contractor, immediately on award of work, shall submit details of his key personnel to be engaged for the work at site. In addition, he shall furnish the Engineer-in-charge detailed program involved with the work. The contractor shall present the programme and status at various review meetings as required. Weekly Review Meetings: Shall be attended by Local Team headed by Project-in-charge along with PMC team and client representative and representative of consultants / associate agencies / specialised agencies for every alternative week.

Agenda	(a)	Weekly programme v/s actual achieved in the past week and programme for next week
	(b)	Remedial actions and hold up analysis
	(c)	Any decision on quarries raised either by contractor / PMC

Monthly Review Meetings: Shall be attended by Project–in–charge and the Management Representative who can take independent decisions along with PMC team and client's representatives and representative of consultants / associate agencies / specialised agencies.

Agenda	(a)	Progress Status / Statistics
	(b)	Completion Outlook
	(c)	Major hold ups / slippages
	(d)	Assistance required
	(e)	Critical issues
	(f)	Any decision on queries raised either by Contractor / PMC
	(g)	Anticipated cash flow requirement for next two months

12 **CLEANLINESS OF SITE**

12.1 The Contractor shall not stack building material / malba / muck on the land or road of the local development authority or on the land owned by the others, as the case may be. So, the muck, rubbish, etc. shall be removed periodically as directed by the Engineer-in-Charge from the site of work to the approved dumping grounds as per the local byelaws and regulations of the concerned authorities and all necessary permissions in this regard from the local bodies shall be obtained by the Contractor. In case, the Contractor is found stacking the building material / malba as stated above, the Contractor shall be liable to pay the stacking charges / penalty as may be levied by the local body or any other authority and also to face penal action as per the rules, regulations and bye-laws of such body or authority. The Engineer–in-Charge shall be at liberty to recover, such sums due but not paid to the concerned authorities on the above counts, from any sums due to the Contractor including amount of the Security Deposit and performance guarantee in respect of this contract agreement.

12.2 The contractor shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed.

12.3 The site of work shall be always kept clean due to constraints of space and to avoid any nuisance to the users of buildings in the adjacent plots. The Contractor shall take all care to prevent any water-logging at site. The waste water, slush, etc. shall not be allowed to be collected at site. It may be directly pumped into the creek with prior approval of the concerned authorities. For discharge into public drainage system, necessary permission shall be obtained from relevant authorities after paying the necessary charges, if any, directly to the authorities. The work shall be carried out in such a way that the area is kept clean and tidy. All the fees / charges in this regard shall be borne by the Contractor.

12.4 It is the responsibility of contractor to keep building neat and clean. The contractor shall spray the chemicals, fumigate site area to check the mosquitoes at frequent interval or as directed by the Engineer-in-Charge. The contractor shall also make lighting and temporary ventilation

arrangement in basement. The contractor shall provide submersible pumps with automatic on / off system in each sump in basement to bail out the accumulated water. The contractor shall quote rates after considering the above stated conditions.

12.5 The contractor shall not wash the drum of TM (transit mixer) at site and shall avoid the spread of leachate / cement slurry at the site of work and all care shall be taken to keep the site neat and clean at his own cost.

12.6 The contractor shall keep a record of the rejected material at the site and these materials shall not be removed from the site without any intimation to the Engineer-in-charge.

13 **INSPECTION OF WORK**

13.1 In addition to the provisions of relevant clauses of the contract, the work shall also be open to inspection by Senior Officers of CPWD / CTE / TPQA and the representatives of the Consultants. The contractor shall at times during the usual working hours and at all times at which reasonable notices of the intention of the Engineer-in-Charge or other officers as stated above to visit the works shall have been given to the contractor, either himself be present to receive the orders and instructions or have a responsible representative duly accredited in writing, to be present for that purpose.

(a) The Committee / Consultant / Third Party Quality Assurance Agency appointed by CPWD, shall be inspecting the works including workshops and fabrication factory to ensure that the works, in general, are being executed according to the design, drawings and specifications laid down in the contract. Their observations shall be communicated by CPWD engineering staff and compliance is to be reported to CPWD.

(b) Senior Officers of CPWD, Dignitaries from Central Ministry / Department, Client Authorities shall be inspecting the on-going work at site at any time with or without prior intimation. The contractor shall, therefore, keep updated the following requirements and detailing:

(i) Display Board showing detail of work, weekly progress achieved with respect to targets, reason of shortfall, status of manpower, wages being paid for different categories of workers.

(ii) Keep entrance and surrounding area clean

(iii) Display layout plan, key plan, building drawings including plans, elevations and sections.

(iv) Upto date displays of Bar chart, CPM, PERT, etc.

(v) Keep details of quantities executed, balance quantities, deviations, possible extra item, substituted item, etc.

(vi) Keep plastic / cloth mounted one set of building drawings.

(vii) Set of Helmets and safety shoes for exclusive use for officers / dignitaries visiting at site.

(c) The work may be inspected by Chief Technical Examiners Organization of Central Vigilance Commission. In such case, the contractor shall make all arrangements for providing required details / documents.

14 **FINAL TESTING OF THE INSTALLATION**

15 **SUBMISSION OF AS-BUILT DRAWINGS AND OBTAINING OCCUPATION CERTIFICATE**

The contractor shall be responsible for obtaining occupation certificate / completion certificate from local bodies including getting the required site visits conducted by such authorities with a view to obtain the same.

16 **DEWATERING**

16.1 De-watering required, if any, shall be done conforming to BIS Code IS: 9759 (guide lines for de-watering during construction) and / or as per the specifications approved by the Engineer-in-Charge. Design of an appropriate and suitable dewatering system shall be the Contractor's responsibility. Such scheme shall be modified / augmented as the work proceeds based on fresh information discovered during the progress of work, at no extra cost. At all times during construction work, efficient drainage of the site shall be carried out by Contractor and especially during the laying of plain cement concrete, taking levels, etc. The Contractor shall also ensure that there is no danger to the nearby properties and installations on account of such lowering of water table. If needed, suitable precautionary measures shall be taken by the Contractor. Also, the scheme of dewatering adopted shall have adequate built-in arrangement to serve as stand-by to attend to repair of pumps, etc. and disruption of power / fuel supply.

16.2 In trenches where surface water is likely to get into cut / trench during monsoons, a ring bund of puddle clay or by any other means shall be formed outside, to the required height, and maintained by the Contractor. Also, suitable steps shall be taken by the Contractor to prevent back flow of pumped water into the trench.

16.3 The Agency shall be responsible for taking necessary approval for the discharge of water.

17 **INSURANCE POLICIES**

17.1 Before commencing the execution of work, the Contractor shall, without in any way limiting his obligations and liabilities, insure at his own cost and expense against any damage or loss or injury, which may be caused to any person or property, at site of work. The Contractor shall obtain and submit to the Engineer-in-Charge proper Contractor All Risk Insurance Policy for an amount 1.25 times the contract amount for this work, with Engineer-in-Charge as the first beneficiary. The insurance shall be obtained in joint names of Engineer-in-Charge and the Contractor (who shall be second beneficiary). Also, he shall indemnify the Department from any liability during the execution of the work. Further, he shall obtain and submit to the Engineer-in-Charge, a third-party insurance policy for maximum amount of ₹ 10 lakh for each accident, with the Engineer-in-Charge as the first beneficiary. The insurance shall be obtained in joint names of Engineer-in-Charge and the Contractor (who shall be second beneficiary). The Contractor shall, from time to time, provide documentary evidence as regards payment of premium for all the Insurance Policies for keeping them valid till the completion of the work. The Contractor shall ensure that Insurance Policies are taken for the workers of his Sub-Contractors / specialized agencies also. Without prejudice to any of its obligations and responsibilities specified above, the Contractor shall within 30 days from the date of letter of acceptance of the tender and thereafter at the end of each quarter submit a report to the Department giving details of the Insurance Policies along with Certificate of these insurance policies being valid, along with documentary evidences as required by the Engineer-in-Charge. No work shall be commenced by the Contractor unless he obtains the Insurance Policies as mentioned above. Also, no payment shall be made to the Contractor on expiry of insurance policies unless renewed by the Contractor. No

claim of hindrance (or any other claim) shall be entertained from the contractor on these accounts.

18 **Training of the Personnel**

The contractor shall arrange at no extra cost to the Department to train Client persons on how to operate and how to carryout preventive maintenance of the systems, minimum one number each for various civil, electrical, mechanical and other services / systems. The contractor shall arrange this training from well qualified and experienced personnel for at least seven days. After completion of the training, certificate of training shall be provided by the contractor to the Client persons and these certificates shall be submitted to the Department till which time 10 % amount of the respective specialized items will be withheld by the department.

19 **Applicable Permits**

19.1 The contractor(s) shall give to the Municipality, police and other authorities all necessary notices, etc. that may be required by law and obtain all requisite licenses for temporary obstructions, enclosures etc. and pay all fee, taxes and charges which may be levied on account of these operations in executing the contract. He shall make good any damage to the adjoining property whether public or private and shall supply and maintain lights either for illumination or for cautioning the public at night.

19.2 The contractor shall ensure that applicable permits mandated by the local bodies and in case warranted for this work are obtained as required under the Applicable Laws. An indicative but not exhaustive list of some of applicable permits is mentioned below for guidance of Contractor.

19.3 Consequences on account of failure to obtain the mandatory permits shall be the sole responsibility of the contractor and no claim whatsoever shall be entertained by the Engineer-in-Charge. Any liability incurred by Engineer in Charge on account of such failure shall be recovered from the amounts / payments due to the contractor.

Permission of the State Government for extraction / quarrying of boulders, sand, earth etc. from quarry / river

Permission of Pollution Control Board for installation of crushers

License for use of explosives

Permission of the State Government for drawing water from river / reservoir

License from Inspector of factories or other competent authority for setting up Batching Plant

Clearance of Pollution Control Board for setting up Batching Plant

Clearance of Pollution Control Board for Asphalt Plant

Clearance of Pollution Control Board for installation of diesel generator sets

Fire safety clearance from fire authorities

Permission of State Government for cutting of trees, if any

Permit for employing unskilled / semi-skilled labour during day / night

Permit for disposal of solid waste/ excess material or soil

Permissions from the public utilities for diversion of utilities including reinstatement / reconstruction to original specifications

Approvals for electric supply / distributions

Any other permits or clearance required under the Applicable laws

The above list of permits is not exhaustive but only indicative. The contractor is expected to ensure that all rules of the land are followed and all permits are taken by him before any activity

and no burden of permits / licence is passed on to department at any point of time.

19.4 The recoveries to be made towards non fulfilment of conditions of submission of 'SMP' (Site Management Plan) as part of the compliance with Green Plus guidelines, technical staff, field laboratory, labour laws, safety measures, etc. as mentioned under Special Conditions are non-refundable. It is over and above the compensation levied (if any) under Clause 2.

20 **PRESERVE AND PROTECT LANDSCAPE DURING CONSTRUCTION**

20.1 The contractor shall ensure that no tree, existing or otherwise, shall be harmed and damage to roots should be prevented during trenching, placing backfill, driving or parking heavy equipment, dumping of trash, oil, paint, and other materials detrimental to plant health. These activities should be restricted to the areas outside of the canopy of the tree, or, from a safe distance from the tree / plant by means of barricading. Trees will not be used for support; their trunks shall not be damaged by cutting and carving or by nailing posters, advertisements or other material. Lighting of fires or carrying out heat or gas emitting construction activity within the ground, covered by canopy of the tree is not to be permitted.

20.2 The contractor shall take steps to protect trees or saplings identified for preservation within the construction site using tree guards of approved specification.

20.3 Contractor should limit all construction activity within the specified area as per the Construction Management Plan (CMP) approved by Engineer-in-Charge.

20.4 The contractor shall avoid cut and fill in the root zones, through delineating and fencing the drip line (the spread limit of a canopy projected on the ground) of all the trees or group of trees. The contractor shall separate the zones of movement of heavy equipment, parking, or excessive foot traffic from the fenced plant protection zones.

20.5 The contractor shall ensure that maintenance activities during construction period shall be performed as needed to ensure that the vegetation remains healthy.

21 **PREPARATION OF SAMPLE (MOCK-UP)**

21.1 The contractor shall prepare one sample / Mock-Up for typical units (e.g. Room / Lobby / quarter). Samples of representative units shall be prepared by the contractor well in advance before taking up the mass execution at the appropriate time as per mile stones. The contractor shall invariably prepare the samples units of finishing items i.e. flooring of different types, external & internal finishing including colour scheme of paint, tiles in dado, flooring in platforms & staircase, water supply & sanitary fittings, structural glazing and any other item as per direction of Engineer-in-Charge. The contractor shall proceed with further finishing items only after getting the samples of these items approved in writing from Engineer-in-charge.

22 **STRUCTURAL SAFETY**

22.1 Following guidelines to be followed where height of casting of concrete is higher than 3.5 m or where higher loading are coming during casting of concrete or large span structure more than 5 meter long or some special structure like domes, vaults, steel structure, glass canopy, etc.

a) Centering / scaffolding / staging / support works for casting of these structures should be properly designed by a qualified and experienced person / agency having past experience in design of false work (centering) for concrete structures and should be proof checked by similar experienced person / agency and it should be approved by Engineer-in-Charge. The provisions of Clause 7 of IS: 14687 may be referred for design of false work (centering).

b) A method statement for erection and dismantling of the centering / scaffolding / staging and process of concreting & process of anchor of steel structure shall be prepared by contractor and submitted to Engineer-in-Charge for approval and the work shall be commenced only after approval of method statement by Engineer-in-Charge. The provisions of Clause 9 of IS:14687 may be referred for erection, safety precautions & other site operations pertaining to false work (centering).

c) Engineering form watcher shall be engaged during erection, concreting and dismantling for early detection of any movement or instability in the system.

d) A detailed programmed of field safety inspection of centering / scaffolding / formwork of such structures during different stages should be chalked out and strictly followed.

e) The prime responsibility of safety of false work shall be with contractor for concrete and structural steel work.

f) Provision of safety net, fall arresting system including other safety gears, for workers, working over these structures shall be followed strictly.

23 **OTHER CONDITIONS W.R.T. EXECUTION OF WORKS**

23.1 The work shall be carried out in accordance with the contract specification / terms, tendered drawings and detailed drawings including revised drawings, if any, issued during execution of work by the Engineer-in-Charge.

23.2 Wherever any reference to any Indian Standards occurs in the documents relating to this contract, the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, up to the last date of receipt of tenders including extensions if any.

23.3 Unless otherwise specified in the schedule of quantities, the rates for all items of work shall be considered, as inclusive of adhering to all special conditions of the contract.

23.4 All stone aggregate and stone ballast shall be of hard stone variety to be obtained from approved quarries. The quarry and gradation of aggregate should be maintained after the mix design is approved and if a change is required for un avoidable reasons a revised mix design is to be done. Contractor is encouraged to get multiple mix designs approved so that an issue with one RMC plant or Quarry does not hamper the progress. Water proofing chemical has to be added while doing concrete of water retaining structure and roofing. The contractor shall get approved separate mix deign with the selected water proofing compound as the additive before such works are taken up.

23.5 Coarse sand should be obtained from approved sources. The same shall be clean and sharp angular grit type. The coarse sand shall be screened before using, if required. If the sand brought to site is dirty, it must be washed in clean water to bring the sand to the required specifications.

23.6 The contractor is required to deploy resources as per availability of site. However, no claim will be entertained for idle labour, idle machinery, idle technical / non-technical staff, idle T&P, etc.

23.7 The work of services will be executed simultaneously. The Contractor shall minimize the scope of making recesses, holes, opening, etc. as the same shall be planned in advance and necessary grooves / niches shall be provided in shuttering of RCC.

23.8 Laminates on flush doors shall be machine pressed, preferably in factory. The design and pattern of laminates shall be as per the approval of Engineer-in-Charge.

23.9 The Aluminium door-windows-framework, lamination and lipping on flush doors shall be factory-

made. Internal lipping shall be provided on flush doors.

23.10 Unless otherwise specified, wherever mild steel / galvanized iron sections and pipes are provided in the work, priming coat of approved steel primer shall be done after removing rust from section, if any, and finally finished with low VOC synthetic enamel paint or as mentioned specifically in specification.

23.11 For avoiding of scratch marks or damage to the vitrified / ceramic floor tile, the necessary arrangement of hessian cloth with a coat of plaster of Paris over it shall be provided.

23.12 Fall nets and scaffolding nets for protection from debris / dusts and noise, etc. are to be provided during the construction period.

23.13 Wherever M.S. grill provided in window, horizontal and vertical spacing of members should normally be 10 cm centre to centre or closer as per requirement.

23.14 Wherever the doors are required to be fixed to AAC block masonry, the frame shall be fixed in RCC band or concrete block masonry.

23.15 In case of reduction in scope of work, no claim on account of reduction in value of work, loss of expected profit, consequential overheads etc. shall be entertained.

24 DISPUTE RESOLUTION

24.1 The department expect a cordial coordination on the part of the contractor. In case of any difference of opinion the contractors are advised to intimate difference of opinion regarding any decision or actions of the Engineer-in-Charge in writing within a maximum of 1 month from the date such a difference of opinion arose so that the issue can be resolved. The said intimation in writing shall be well quantified with proof if any for verification at the time. Any dispute or difference of opinion raised after one month of occurrence of the said dispute or any un/ill quantified claims made would be considered as an afterthought and will not be entertained. All disputes would be resolved as per the conditions of the contract and contractor shall strictly follow the same.

Note: Nothing extra shall be payable on the account of the special conditions mentioned under Section – 1 to 8.

SECTION 2

SPECIAL CONDITIONS FOR GREEN BUILDING

2.0 The building shall confirm to Green Building CPWD 2021 Green Plus Rating. The points that are aimed for to achieve the Green Plus Rating will be mentioned in the drawing. The contractor shall ensure such actions and documentation so that the points aimed for from the construction planning and execution activities are not lost.

2.1 **Construction Stage**

(a) All vehicles, equipment and machinery to be procured for construction shall conform to the relevant Bureau of India Standard (BIS) norms.

(b) Emission from the vehicles must conform to environmental norms

(c) Dust produced from the vehicular movement and other site activities is to be mitigated by sprinkling of water.

(d) Noise limits for construction equipment shall not exceed 75 dB(A), measured at one meter from the edge of the equipment in free area, as specified in the Environment Protection Act 1986, Schedule VI-Part E, as amended on 9th May 1993. The maximum noise levels near the construction site should be limited to 65 dB (A) Leq (5 min) in project area.

(e) **Construction Waste Disposal**

(i) The pre-identified dump locations will be a part of solid waste management plan to be prepared by the Contractor in consultation with Engineer-in-charge.

(ii) Contractor shall get approved the location of disposal site prior to commencement of the excavation on any section of the project location.

(iii) Contractor shall ensure that any spoils of material / construction waste will not be disposed-off in any municipality solid waste collection bins.

2.2 **Procurement of Construction Materials**

(i) All vehicles delivering construction materials to the site shall be covered to avoid spillage of materials and maintain cleanliness of the roads.

(ii) Wheel Tyres of all vehicles used by of the contractor, or any of his subcontractor or materials suppliers shall be cleaned and washed clear of all dust / mud before leaving the project premises. This shall be done by routing the vehicles through tyre washing tracks.

(iii) Contractor shall arrange for regular water sprinkling at least twice a day (i.e. morning and evening) for dust suppression of the construction sites and unpaved roads used by his construction vehicles.

2.3 **Water Pollution**

(i) The Contractor shall take all precautionary measures to prevent the wastewater during construction to accumulate anywhere.

(ii) The wastewater arising from the project is to be disposed-off in the manner that is acceptable to the Engineer–in-charge.

2.4 **Air and Noise Pollution**

(i) Contractor shall use dust screens and sprinkle water around the construction site to arrest spreading of dust in the air and surrounding areas.

(ii) Contractor shall ensure that all vehicles, equipment and machinery used for construction are regularly maintained and confirm that emission levels comply with environmental emission standards / norms.

(iii) For controlling the noise from vehicles, all vehicles and equipment used in construction will be fitted with exhaust silencers.

(iv) Servicing of all construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective will be replaced.

(v) Noise emission from compactors (rollers), front loaders, concrete mixers, cranes (movable), vibrators and saws should be less than 75 dB(A).

(vi) As per the standards / guidelines for control of Noise Pollution from Stationary Diesel Generator (DG) sets, noise emission in dB(A) from DG Set (15-500 KVA) should be less than 94+10 log 10 (KVA). The standards also suggest construction of acoustic enclosure around the DG Set and provision of proper exhaust muffler with insertion loss of minimum 25 dB(A) as mandatory.

2.5 **Personal Safety, Hygiene Measures for Labour**

i) Contractor shall provide the following items for safety of workers employed by contractor and associate agencies:

a) Protective footwear, helmet and gloves to all workers employed for the work on mixing, cement, lime mortars, concrete, etc. and openings in water pipeline / sewer line.

b) Welder's protective eye-shields to workers who are engaged in welding works.

c) Safety helmet and Safety harness / belt

d) Provide adequate sanitation / safety facilities for construction workers to ensure the health and safety of workers during construction, with effective provisions for the basic facilities such as sanitation, drinking water and safety equipment or machinery.

(ii) All the workers should be wearing helmet and shoes all the time on site.

(iii) Masks and gloves should be worn whenever and wherever required.

(iv) Adequate drinking water facility should be provided at site, adequate number of decentralized latrines and urinals to be provided for construction workers.

(v) Full-time workers (if any with the approval of Engineer-in-Charge) residing on site should be provided with clean and adequate temporary hutment.

(vi) First aid facility should also be provided.

(vii) Overhead lifting of heavy materials should be avoided. Barrow wheel and hand-lift boxes should be used to transport materials onsite.

(viii) Tobacco and cigarette smoking should be prohibited onsite.

(ix) All dangerous parts of machinery shall be well guarded and all precautions for working on machinery shall be taken.

(x) Maintain hoists and lifts, lifting machines, chains, ropes and other lifting tackles in good condition. Provide safety net of adequate strength to arrest falling material down below.

(xi) Use of durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.

(xii) Ensure that walking surfaces or boards at height are of sound construction and are provided with safety rails and belts. Provide protective equipment such as helmets.

(xiv) Provide measure to prevent fire. Fire extinguisher and buckets of sand to be provided in fire-prone area and elsewhere.

(xv) Provide sufficient and suitable light for working during night.

(xvi) Ensure that measures to protect workers from materials of construction, transportation, storage and other dangers and health hazards are taken.

(xvii) Ensure that the construction firm / division / company have sound safety policies.

(xviii) Comply with the safety procedure, norms and guidelines (as applicable) as outlined in NBC 2016.

(xix) Adopt additional best practices and prescribed norms as in NBC 2016.

2.6 Identify roads on-site that would be used for vehicular traffic. Upgrade vehicular roads (if these are unpaved) by increasing the surface strength by improving particle size, shape and mineral type that make up the surface base. Add surface gravel to reduce source of dust emission. Limit amount of fine particles (smaller than 0.075 mm) to 10-20%. Limit vehicular speed on site to 10 km/h. Nothing extra will be payable for this.

2.7 All material storages should be adequately covered and contained so that they are not exposed to situations where winds on site could lead to dust / particulate emissions.

2.8 Spills of dirt or dusty materials shall be cleaned up promptly so the spilled material does not become a source of fugitive dust and also to prevent seepage of pollutant laden water into the ground aquifers. When cleaning up the spill, ensure that the clean – up process does not generate additional dust. Similarly, spilled concrete slurries or liquid wastes should be contained / cleaned up immediately before they can infiltrate into the soil/ground or runoff in nearby areas.

2.9 Contractor shall ensure that water spraying is carried out by wetting the surface by spraying water on:

(i) Any dusty material

(ii) Areas where demolition work is carried out

(iii) Any unpaved main-haul road and

(iv) Areas where excavation or earth moving activities are to be carried out

2.10 The contractor shall ensure the following:

(i) Cover and enclose the site by providing dust screen, sheeting or netting to scaffold along the perimeter of a building

(ii) Covering stock piles of dusty material with impervious sheeting

(iii) Covering dusty load on vehicles by impervious sheeting before they leave the site

(iv) Transferring, handling / storing dry loose materials like bulk cement and dry pulverized fly ash inside a totally enclosed system

(v) Clear vegetation only from areas where work will start right away

(vi) Vegetate / mulch areas where vehicles do not ply

(vii) Apply gravel / landscaping rock to the areas where mulching / paving is impractical

2.11 **Special conditions for Green Plus compliance for work:**

(i) The contractor shall ensure that the following provisions are complied with during the construction besides GCC provisions related to a) CPWD safety code b) Model rules and c) CPWD contractors labour regulations.

(a) Reduction in air pollution during construction by taking necessary measures. For example, Covering stock piles, covering bricks and loads of dusty materials, carry out

wheel washing of vehicles entering/exiting the site, sprinkle water on roads with loose dust, cordoning of material stocking area and construction work area, etc.

(b) Efficient water use during construction

(c) Efficient reduction in waste during construction by segregating hazardous and inert waste and such segregated waste shall be safely disposed off

(d) Smoking is strictly prohibited on site

(e) All construction materials are properly stacked without only spillage and wastage.

(ii) No extra payment shall be made for all the operations described above such as covering stock piles, covering bricks and loads of dusty materials, carrying-out wheel washing of vehicles entering/exiting the site, sprinkling water on roads with loose dust, cordoning of materials stacking area and construction work area, etc. It may be noted that the quoted amount covers the cost of these operations. In case the special conditions for Green Plus compliance is not strictly followed during the execution of the work the fine **(non-refundable)** for non-performance of each corresponding activity specified as below shall be levied per day of failure.

Sl. No.	**Operations**	**Fine per day**
1.	Covering stock piles	₹ 100 / day
2.	Covering bricks and loads of dusty materials	₹ 100 / day
3.	Carry out wheel washing of vehicles entering / exiting the site	₹ 350 / day
4	Sprinkler water on roads having loose dust	₹ 270 / day
5.	Cordoning of material stocking area and construction work area	₹ 100 / day

(iii) If the non-compliance of Green Plus norms are observed for more than a week it shall be construed that the agreement conditions are not performed by the Agency and action shall be taken as deemed fit by the Engineer-in-Charge.

2.12 Adopt measures to prevent air pollution in the vicinity of the site due to construction activities. There is no standard reference for this. The best practices should be followed (as adopted from international best practice documents and codes).

2.13 The contractor shall provide experienced personnel with suitable training to ensure that these methods are implemented. Prior to the commencement of any work, the method of working, plant equipment and air pollution control system to be used on–site should be made available for the inspection and approval of the Engineer–in-Charge to ensure that these are suitable for the project.

2.14 Employ measures to segregate the waste on-site into inert, chemical or hazardous wastes. Recycle the unused chemical / hazardous wastes such as oil, paint, batteries and asbestos. The inert waste is to be disposed-off to Municipal Corporation / local bodies dump yard & landfill sites.

2.15 To preserve the existing landscape and protect it from degradation during the process of construction, proper timing for construction activity shall be selected to minimize the disturbance such as soil pollution due to spilling of the construction material and it’s mixing with rainwater.

The construction management plan including soil erosion control management plan shall be prepared accordingly for each month. The application of erosion control measures includes construction of gravel pits and tyre washing bays of approved size and specification for all vehicular site entry / exits, protection of slopes greater than 10%. Sedimentation Collection System and run-off diversion systems shall be in place before the commencement of construction activity. Existing vegetation shall be preserved and protected by not-disturbing or damaging specified site areas during construction.

2.16 The Contractor should follow the construction plan as proposed by the Engineer-in-Charge / landscape consultant to minimize the site disturbance such as soil pollution due to spilling. Use staging and spill prevention and control plan to restrict the spilling of the contaminating material on site.

2.17 Spill prevention and control plans should clearly state measures to stop the source of the spill. Measures to contain the spill and measures to dispose the contaminated material and hazardous wastes shall be taken by the bidder. Agency should also state the designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners and petroleum products.

2.18 A soil Erosion and Sedimentation Control Plan (ESCP) should be prepared prior to construction and should be applied effectively.

2.19 The contractor shall prepare and submit ‘Spill prevention and control plans’ before the start of construction, clearly stating measures to stop the source of the spill, to contain the spill, to dispose the contaminated material and hazardous wastes, and stating designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.

2.20 The contractor shall ensure that no construction leaches (e.g. cement slurry) are allowed to percolate into the ground. Adequate precautions are to be taken to safeguard against this including reduction of wasteful curing processes, collection, basic filtering and reuse. The contractor shall follow requisite measures for collecting drainage water run-off from construction areas and material storage sites and diverting water flow away from such polluted areas. Temporary drainage channels, perimeter dyke / swale, etc. shall be constructed to carry the pollutant–laden water directly to the treatment device or facility (municipal sewer line).

2.21 All lighting installed by the contractor around the site and at the labour quarters during construction shall be CFL / LED bulbs of the appropriate illumination levels. This condition is a must, unless specifically prescribed otherwise.

2.22 All the building materials and systems used on site must be as per the specifications and approved makes by the Engineer-in-Charge.

2.23 All required certificates explaining the properties of the building material / system needs to be obtained from the manufacturer / vendor as required by the green building rating authority. The purchase orders of all the materials made with the manufacturers / authorized vendors should be maintained and shall be provided for the process with due diligence upon request.

2.24 All paints, adhesives and sealants should comply with the VOC limits prescribed by Green Plus, as follows:

Table 1- VOC limits for Paints, Adhesives and Sealants

Description	VOC Limit (g/l)	Description	VOC Limit (g/l)
PAINTS		**Adhesive**	
Non-flat paints	150	Wood flooring	100
Flat (Mat) paints	50	Tile	65
Anti-corrosive / anti-rust	250	Indoor Carpet	50
COATINGS			
Varnish	350	Structural Glazing	100
Lacquer	550	Multipurpose Construction	70
Floor Coatings	100		
Stains	250		

2.25 Water saving measures as suggested by the consultants need to be followed on site. If bore well water is used for construction, it must be metered. For waste water use in construction, record must be maintained of all tankers used at site. All sources of water use during construction must be regularly monitored.

2.26 The contractor / subcontractor shall prepare and submit a Site Management Plan (SMP) within 15 days of start, for approval by the Engineer–in-charge. This SMP shall indicate the locations of godown, stockpiles, barricading, waste storage, offices, vehicular movement routes, etc. In short, this SMP would comprehensively represent how the site activities shall be managed conforming to Green Plus guidelines.

2.27 Any other site management measures suggested by the Engineer-in-charge / green building consultant shall be followed on site.

2.28 The contractor & his team shall put adequate efforts to minimize construction waste generation at site. This shall include collection and segregation of all construction waste at site like broken bricks, tiles, glass, pavers, steel scrap, concrete debris, plastic bags, drums, packaging cardboard, timber scrap, cement bags, etc.

2.29 The contractor must keep record of all the construction waste being recycled or reused at site and also maintain receipts/records of waste sold from site. The contractor must ensure that no waste from the site is sent to landfill sites, either all waste is reused within the site or sent for recycling. Track the waste sent off the site to its final destination. Contractor must keep record as gate passes / challans for all the waste material sent out for selling.

2.30 The contractor shall submit to the Engineer–in-Charge after construction of the buildings, a detailed as-built quantification of the following within 10 days of recording of completion. Contractor will be penalized @ ₹ 500 per day of delay in submission of “detailed as built quantification”.

(i) Total materials used

(ii) Total waste generated

(iii) Total waste reused

(iv) Total water used

(v) Total electricity consumed and

(vi) Total diesel consumed

2.31 Evidence for the implementation of all the above required measures shall be provided to the Engineer-in-Charge in the form of photographs and templates as required which is required for the submission to the green building rating authority.

2.32 The contractor shall provide potable water for all workers. The contractor shall provide the minimum level of sanitation and safety facilities for the workers at site. The contractor shall ensure cleanliness of workplace with regard to the disposal of waste and effluent; provide clean drinking water and latrines and urinals as per applicable standard. Adequate toilet facilities shall be provided for the workman within easy access of their place of work. The total number to be provided shall not be less than 1 per 30 employees in any one shift. Toilet facilities shall be provided from the start of building operations, connection to a sewer shall be made as soon as practicable. Every toilet shall be so constructed that the occupant is sheltered from view and protected from the weather and falling objects. Toilet facilities shall be maintained in a sanitary condition. A sufficient quantity of disinfectant shall be provided. Natural or artificial illumination shall be provided.

2.33 In compliance to the Hon'ble National Green Tribunal (NGT) and Office Memorandum No. DG/SE/CM/CON/Misc./02 dated 16.03.2016, following preventive / corrective measures to be taken at site in order to control air pollution from construction and demolition activity:

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

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

(iii) 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 plot area.

(iv) 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.

(v) 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.

(vi) 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.

(vii) 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.

(viii) The contractor shall ensure compulsory use of wet jet in grinding and stone cutting.

(ix) The contractor shall comply with all the preventive and protective environmental steps as stated in the MoEF Guidelines 2010.

(x) The contractor shall carry out on-road-inspection for black smoke generating machinery. The contractor shall use cleaner fuel.

(xi) The contractor shall ensure that all DG sets comply with emission norms notified by MoEF.

(xii) 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.

(xiii) 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.

(xiv) 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.

2.34 In case of non-availability of the C&D Waste Material / Product, the contractor shall make arrangement of substitute materials / products without any cost adjustment.

2.35 Any penalty imposed by Civic bodies / NGT for Non-Compliance of their guidelines issued by them from time to time shall be borne by the contractor.

2.36 The contractor shall comply with the safety procedures, norms and guidelines (as applicable) as outlined in the Part 7 of National Building code 2016 of India, Bureau of Indian Standards. A copy of all pertinent regulations and notices concerning accidents, injury and first-aid shall be prominently exhibited at the work site. Depending upon the scope & nature of work, a person qualified in first-aid shall be available at work site to render and direct first-aid to causalities. A telephone may be provided to first-aid assistant with telephone numbers of the hospitals displayed. Complete reports of all accidents and action taken thereon shall be forwarded to the competent authorities.

2.37 The contractor shall ensure the following for construction workers safety among other measures:

- Guarding all parts of dangerous machinery
- Precautionary signs for working on machinery
- Maintaining hoists, lifting machines, chains, ropes & other lifting tackles in good condition
- Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained
- Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts
- Provide protective equipment; helmets, etc.
- Provide measures to prevent fires
- Fire extinguishers and buckets of sand to be provided in the fire-prone area and elsewhere
- Provide sufficient and suitable light for working during night time

2.38 Evidence for the implementation of all the above required measures shall be provided to the Engineer-in-Charge in the form of photographs and templates as required which is required for the submission to the green building rating authority.

2.39 Where possible, the contractor shall select materials / vendors, harvested and manufactured regionally, within close proximity of the project site. Contractor shall collect & submit the relevant material certificates for materials with high recycled (both post-industrial and post- consumer) content, including materials like RMC mix with fly-ash, glass with recycled content, calcium silicate boards etc. Contractor shall collect the relevant material certificates for rapidly renewable materials such as bamboo, wool, cotton insulation, agri-fiber, linoleum, wheat board, strawboard, cork, etc.

2.40 The contractor shall ensure that a flush out of all internal spaces is conducted prior to handover. This shall comprise an opening of all doors and windows for 14 days to vent out any toxic fumes due to paints, varnishes, polishes, etc.

2.41 Wherever required, Contractor shall meet and carry out of all activities on site, supplementation of information, and submitting in accordance with IGBC LEED India New Construction V1.0 &Green Plus program standards and guidelines. Towards meeting the aforementioned building environmental rating standard(s) expert assistance shall be provided to him upon request.

2.42 **CONSTRUCTION WASTE**

The contractor shall make himself conversant with the Site Waste Management Program Manual and actively contribute to its compilation by estimating the nature and volume of waste generated by the process / installation in question. The Contractor's ingenuity is especially called towards meeting this prerequisite / credit (as per IGBC LEED India, New Construction v1.0 &Green Plus, MNRE) for recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation.

a) Contractor shall ensure that wastage of construction material is within 3%. Subject to the suitability, all construction debris shall be used for road preparation, back filling, etc, as per the instructions of the Engineer in Charge, with necessary activities of sorting, crushing, etc. No construction debris shall be taken away from the site, without the prior approval of the Engineer in Charge. If and when construction debris is taken out of the site, after prior permissions from the Engineer in Charge, then the contractor shall ensure the safe disposal of all wastes and will only dispose of any such construction waste in approved dumping sites.

b) Contractor shall collect all construction waste generated on site. Segregate these wastes based on their utility and examine means of sending such waste to manufacturing units which use them as raw material or other site which require it for specific purpose. All construction debris generated during construction shall be carefully segregated and stored in a demarcated waste yard. Clear, identifiable areas shall be provided for each waste type. Employ measures to segregate the waste on site into inert, chemical, or hazardous wastes. Typical construction debris could be broken bricks, steel bars, broken tiles, spilled concrete and mortar, etc.

c) Water spray, through a simple hose for small projects, to keep dust under control. Fine mists should be used to control fine particulate. However, this should be done with care so as not to waste water. Heavy watering can also create mud, which when tracked onto paved public roadways, must be promptly removed. Also, there must be an adequate supply of clean water nearby to ensure that spray nozzles don't get plugged.

d) Contractor shall be required to provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling including (at a

minimum) paper, corrugated cardboard, glass, plastics, and metals. He shall coordinate the size and functionality of the recycling areas with the anticipated collections services for glass, plastic, office paper, newspaper, cardboard, and organic wastes to maximize the effectiveness of the dedicated areas. Consider employing cardboard balers, aluminium can crushers, recycling chutes, and collection bins at individual workstations to further enhance the recycling program.

e) Staging (dividing a construction area into two or more areas to minimize the area of soil that will be exposed at any given time) should be done to separate undisturbed land from land disturbed by construction activity and material storage.

f) The storage of material shall be as per standard good practices as specified in Part 7, Section 2 in Storage, Stacking and Handling practices, NBC 2016 and shall be to the satisfaction of the Engineer in Charge to ensure minimum wastage and to prevent any misuse, damage, inconvenience or accident. There should be a proper planning of the layout for stacking and storage of different materials, components and equipment's with proper access and proper manoeuvrability of the vehicles carrying the materials. While planning the layout, the requirements of various materials, components and equipment's at different stages of construction shall be considered.

g) The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilization of these bins for any solid waste generated during the construction. The contractor shall ensure that the site and the workers facilities are kept litter free. Separate bins should be provided for plastic, glass, metal, biological and paper waste and labelled in both Hindi and English with suitable symbols.

h) The Contractor shall remove from site all rubbish and debris generated by the Works and keep the Work Site clean and tidy throughout the Contract Period. All the serviceable and non-serviceable (malba) material shall be segregated and stored separately. The malba obtained during construction shall be collected in well-formed heaps at properly selected places, keeping in a view safe condition for workmen in the area. Materials which are likely to cause dust nuisance or undue environmental pollution in any other way, shall be removed from the site at the earliest and till then they shall be suitable covered. Glass & steel should be dumped or buried separately to prevent injury. The removal of debris should be carried out during day. In case of poor visibility artificial light may be provided.

2.43 **DOCUMENTATION**

(a) The contractor shall submit a document after construction of the buildings, a brief description along with photographic records to show that other areas have not been disturbed during construction. The document should also include brief explanation and photographic records to show erosion and sedimentation control measures adopted (Document CAD drawing showing site plan details of existing vegetation, existing buildings, existing slopes and site drainage pattern, staging and spill prevention measures, erosion and sedimentation control measures and measures adopted for top soil preservation during construction).

(b) The contractor shall submit to the Engineer in Charge, before the start of construction, a site plan along with a narrative to demarcate areas on site from which top soil has to be gathered, designate area where it will be stored, measures adopted for top soil preservation and indicate areas where it will be reapplied after construction is complete.

(c) The contractor shall submit to the Engineer in Charge, a detailed narrative (not more than 250 words) on provision for safe drinking water and sanitation facility for construction workers and site personnel.

(d) Provide supporting document from the manufacturer of the pre-cast building blocks specifying the fly ash content of the blocks used in an infill wall system.

(e) The contractor shall, during the entire tenure of the construction phase, maintain the following records and submit to the Engineer in Charge on demand:

(i) Water consumption in litres

(ii) Electricity consumption in 'kwh' units

(iii) Diesel consumption in litres

(iv) Quantum of waste (volumetric / weight basis) generated at site and the segregated waste types divided into inert, chemical and hazardous wastes

(v) Digital photo documentation to demonstrate compliance of safety guidelines as specified herein

(vi) Quantities of material brought into the site, including the material issued to the contractor by the Engineer-in-Charge

(vii) Quantities of construction debris (if at all) taken out of the site

(viii) Digital photographs of the works at site, the workers facilities, the waste and other material storage yards, pre-fabrication and block making works, etc. as guided by the Engineer-in-Charge

f) The contractor shall submit to the Engineer-in-Charge, following information, for all material brought to site for construction purposes, including manufacturer's certifications, verifying information, and test data, where specifications sections require data relating to environmental issues including but not limited to:

i) Source of products: Supplier details and location of the supplier

ii) Project Recyclability: Submit information to assist Owner and Contractor in recycling materials involved in shipping, handling, and delivery, and for temporary materials necessary for installation of products

iii) Recycled Content: Submit information regarding product post-industrial recycled and post-consumer recycled content

iv) Product Recyclability: Submit information regarding product and product's component's recyclability including potential sources accepting recyclable materials wherever applicable

(g) Provide total support to Engineer in Charge and Green Building Consultants appointed by the Engineer in charge in completing all Green Building Rating related formalities, including signing of forms, providing signed letters in the contractor's letterhead whenever required.

(h) The contractor is expected to go through all other conditions of the LEED &Green Plus rating stipulations. Failure to adhere to any of the above-mentioned items, without approval of the Engineer in Charge, shall be deemed as a violation of contract and the contractor shall be held liable for penalty as per terms of the agreement.

SECTION 3

3.0 PARTICULAR SPECIFICATION AND SPECIAL CONDITIONS FOR CEMENT BROUGHT BY THE CONTRACTOR

3.1 **CEMENT**

The agency shall procure OPC conforming to IS: 8112 / PPC conforming to IS: 1489 (Part 1) as required in the work from reputed cement manufacturers mentioned in the list of Preferred makes for civil works or from any other reputed cement manufacturer having a production capacity not less than 1 million tons per annum as approved by competent authority of CPWD. The bidders may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name(s) of cement manufacturer(s) which the bidder proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturers, given by the bidder, fully or partially.

3.2 Supply of cement shall be taken in 50 kg bags bearing manufacturer's name and ISI marking OR in bulk in bunkers in which case the contractor may purchase directly from the manufacturer. 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 test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer-in-Charge to do so. Every fresh cement batch should be brought to site at least 30 days before they are to be used / consumed in the work.

3.3 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 enough to ensure progress of work without delay may be constructed at site as per CPWD specification.

3.4 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. The frequency and details of the tests shall be decided by the Engineer-in-Charge depending on the quantum of supply in each batch. The cost of tests shall be borne by the contractor.

3.6 The actual issue and consumption of cement on work shall be regulated and proper accounts be maintained by the contractor. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause 38 of the contract and shall be governed by the conditions laid therein. Cement consumption less than theoretical consumption including permissible variation, is not permitted. In case of excess consumption, no adjustment shall be made and no extra payment shall be made. 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.

3.7 Damaged cement shall be removed from the site immediately by the contractor on receipt of a notice in writing from the Engineer-in-charge. Till the time it is removed the damaged cement shall be clearly marked quantified and kept separately so that the same is not used by mistake in the work. 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.

3.8 ADGs / SDGs may change the brand of cement depending upon availability in local market but

conforming to grade mentioned in the NIT and only with ISI mark, if warranted. The name of the manufacturers should be finalized after taking into consideration the availability and the cost factor.

SECTION 4

4.0 **SPECIAL CONDITION FOR STEEL REINFORCING BARS**

4.1 Only ISI marked **Corrosion Resistant Steel (CRS)** Bars (Bars Set I) of various grades conforming to IS: 1786 and additional requirements (e.g. Chemical composition requirement for manganese and copper, Tempered Marten site (TM) Ring Requirement, Marking Requirement and compliance of provisions of ISO 9001: 2015 and ISO 14001: 2004 (Refer Annexure -1 (c)) shall be procured from the list of approved manufactures or from the manufactures who are approved by the SDG of CPWD in any region of CPWD based on set guidelines for use in the work.

4.2 The contractor shall have to obtain and furnish test certificates to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work.

4.3 Samples shall also be taken and got tested by the Engineer-in-charge as per the provisions in this regard in relevant BIS code and additional requirements as mentioned above. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications as defined under Para 4.1 above, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week's time of written orders from the Engineer-in-charge to do so.

4.4 The steel reinforcement bars shall be brought to the site preferably in bulk supply of 25 tonnes or more or as decided by the Engineer-in-Charge. Each lot of supplies steel will be tested irrespective of the lot size.

4.5 The steel reinforcement shall be stored by the contractor at site of work in such a way as to prevent distortion and 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.

4.7 The contractor shall supply free of charge the steel required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor.

4.8 The actual issue and consumption of steel on work shall be regulated and proper accounts shall be maintained as provided in Clause 10 of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in Clause 38 of the contract and shall be governed by conditions laid therein. Steel consumption less than theoretical consumption including permissible variations is not permitted. In case of excess consumption, no adjustment shall be made and no extra payment shall be made.

4.9 The steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-Charge. For the purpose of payment, the actual weight of reinforcement steel shall be worked out as below:

4.10 To arrive at unit weight for the purpose of payment three random samples each of 1 meter length shall be collected for each diameter of re-bar from every consignment received at site. Actual weight of three specimens for each diameter shall be taken and average weight calculated and recorded. The average weight so arrived at shall be compared with theoretical weight of that particular diameter of rebar. Actual or theoretical weight whichever is less shall be considered for making payment for that consignment. However final payment shall be made on the basis of weighted average of all the consignment. The decision of the Engineer-in-charge as regards the random samples and average weight shall be final and binding on the contractor and no claim of any kind shall be entertained in this regard.

4.11 The contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be used in the work. All consignment received at the work site shall be inspected by the Site staff along with the relevant documents before acceptance. The contractor shall obtain Original Vouchers and copy of Test Certificates and furnish the same to the Engineer-in-Charge in respect of all the lots of steel brought by him from approved supplier to the site of work. The original vouchers and copy of test certificates shall not be defaced by the Site staff and kept on record in the site office. The reinforcing steel brought to site of work shall be stored on brick / timber platform of 30 / 40-cm height. Nothing extra shall be paid on this account.

Annexure-I (c)

Testing requirement for Individual reinforcement bar diameter of Particular Grade of Steel

Tests required for Fe 415D, Fe500D, Fe550D grade of steel and Low alloy steel reinforcement bars

A **BAR SET-1**

1 Tests as per IS 1786 (latest version) and specified therein

1.1 Chemical Properties

a) Carbon (C)
b) Sulphur (S)
c) Phosphorous (P)
d) Nitrogen and Carbon Equivalent

1.2 Physical Properties

(i) 0.2 percent proof stress / yield stress, minimum, N/mm2

(ii) Ratio of Tensile Strength (Ts) to Actual Yield Strength (or 0.2% of yield stress (Ys)) of the test piece N/mm2

(iii) Elongation, percent, Minimum, on gauge length 5.65VA, where A is the cross- sectional area of the test piece

(iv) Total elongation at maximum force, percentage, minimum on gauge length 5.65VA, where A is the cross-sectional area of the test piece

(v) Bend test and re-bend test

(vi) The mean area of ribs (in mm2) per unit length (in mm) above the core of the bar, projected on a plane normal to the axis of the bar

(vii) Pull-out testing in accordance with IS 2770 (Part 1)

2 **Additional requirement**

2.1 Permissible limit for Manganese and Copper as follows (**Table 1**):

Constituent	**Permissible Limit (% of cast metal quantity)**		
	Fe 415 D	**Fe 500 D**	**Fe 550 D**
Manganese (Mn)			
Maximum	1.60	1.60	1.60
	Copper (Cu)		
Maximum	0.80	0.80	0.80
Minimum	0.20	0.20	0.20

Notes:

The above composition shall be obtained as per latest version of IS 228

1. Manganese using Periodate Spectrophotometric Method **(Part 12),** and

2. Copper using Thiosulphate iodide Method **(Part 15)** or Spectrophotometric (Diethyl Dithiocarbonate) Method **(Part 21)**

2.2 Tempered Martensite Ring Test as per Annexure-I (d)

2.3 The process of manufacturing steel shall comply with the provisions of ISO9001: 2015 and ISO14001:2004

Annexure-I (d)

1 CRITERIA FOR CLASSIFICATION OF BARS

The steel bars manufactured in India shall be classified as specified hereunder for the purposes of their use in works of CPWD.

1.1 Process of Classification

Steel Bars shall be classified as Bar Set / and Bar Set. The bars shall be placed under one of these categories based on Type Test (the test performed to select the bars) performed as specified hereunder. These tests to be performed are those specified in the latest version of **IS 1786** published by the Bureau of Indian Standards, and the additional tests as mentioned in this document.

The Type Test shall be performed at any one of the National Test Houses, IITS, NITs, and NCCBM, subject to:

(a) The test samples being collected from the manufacturing facility by the representative engineer of CPWD

(b) The availability of the required test facility at the said laboratory and

(c) The test being witnessed by representative engineer of CPWD

1.2 Classification of Steel Bars

The bar shall be classified as:

(a) Bar Set I if it complies with the requirements given in the latest version of **IS: 1786**, and those given in this document

(b) Bar Set II, if it complies with the requirements given in the latest version of **IS 1786**

2 ADDITIONAL REQUIREMENTS

Four additional requirements as specified hereunder:

2.1 Chemical Composition Requirement

The permissible limits of additional elements shall be as per **Table 1.**

2.2 TM Ring Requirement

The following two requirements shall be met with

(i) Does the Tempered Martensite (TM) Ring satisfy the visual analysis as per **Step 1** of **Table 2**

(ii) The thickness of the TM Ring obtained as per **Step 2 of Table 2** shall be between 0.07f and 0.15f, where f is the original nominal diameter of the bar.

(a) Test Procedure

The following is the procedure:

(i) The test setup to capture the Cross-Sectional Phase Distribution (CSPD) of the TMT bars shall be as shown in **Figure 1**

(ii) Steel bars may be cut using handsaw or an abrasive cutter with continuous supply of coolant to limit the temperature of steel, and thereby avoid any transition or changes in Tempered Martensite (TM) and Ferrite-Pearlite (FP) phases **(Figure 2).** The sharp edges of cut bars should be smoothened using silicon carbide abrasive sheets. A metal polishing machine can be used to

achieve effective smoothening.

(iii) The smoothened steel specimen shall be moulded in cold setting epoxy with good surface finish. Setting time of epoxy is about 10-15 minutes.

(iv) The moulded specimen surface shall be course polished using abrasive sheets of 80, 150, 220, 320, and 600 grit sizes in sequence. Specimens shall be micro-etched using Nital (5% Nitric acid in alcohol) to capture the CSPD.

(b) **Measurements**

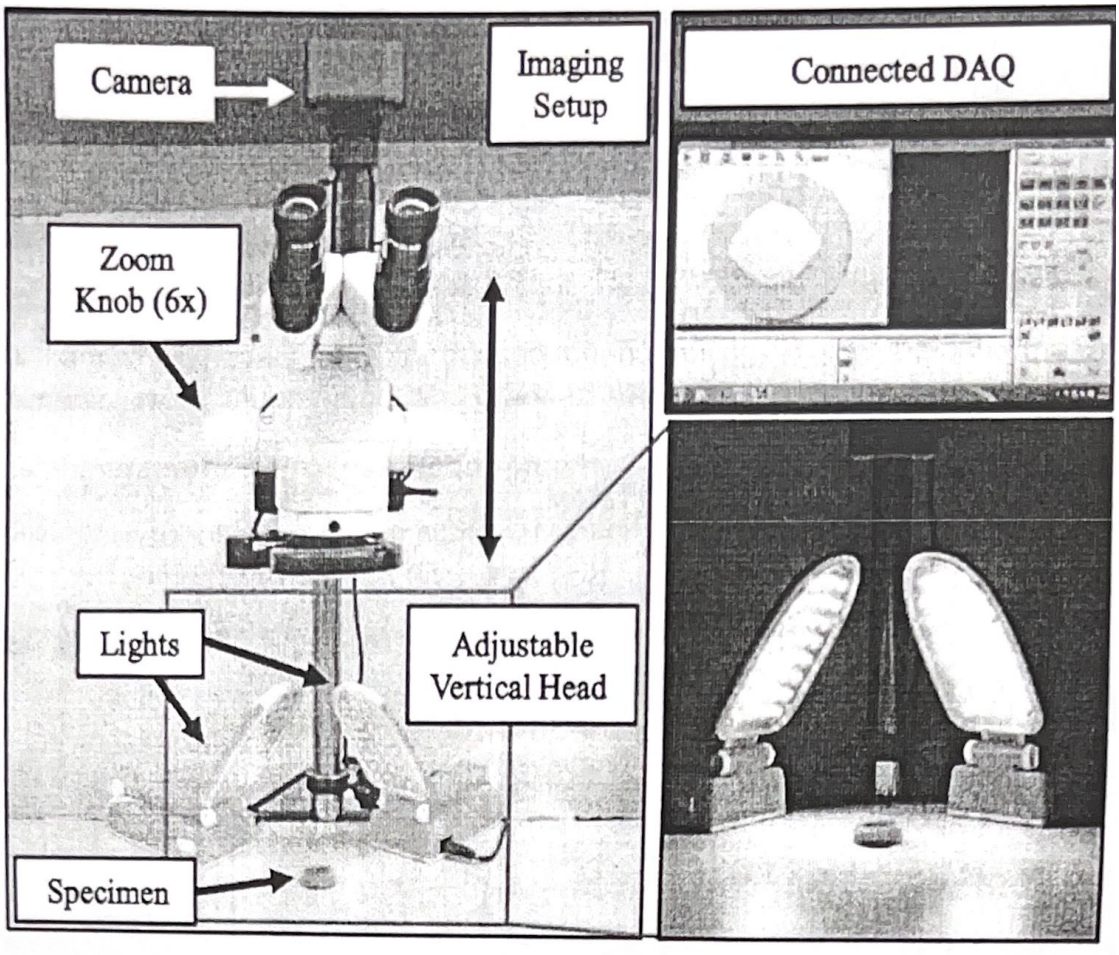
The procedure for obtaining the CSPD of the TM Ring along the perimeter shall be as per Table 2.

2.3 **Marking Requirement**

All bars shall have marks introduced during rolling, which indicate the name of manufacturer or brand name, and grade of steel.

2.4 **Manufacturing Process Requirement**

The process of manufacturing steel shall comply with the provisions of ISO 9001:2015 and ISO 14001:2004.



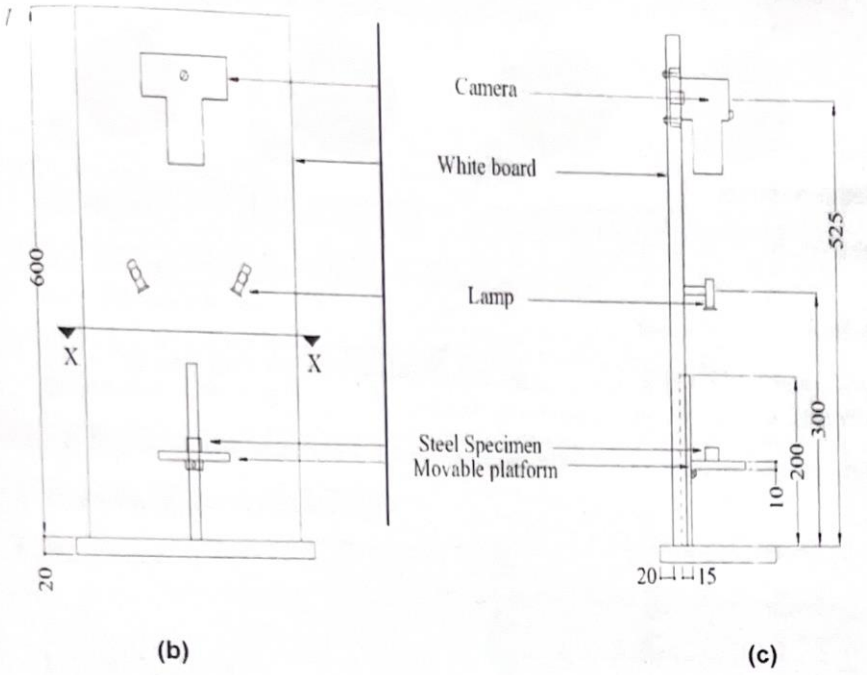


Figure 1: Test setup for CSPD of the TMT bars: (a) Imaging Setup, (b) Schematic Front View (c) Schematic Side View

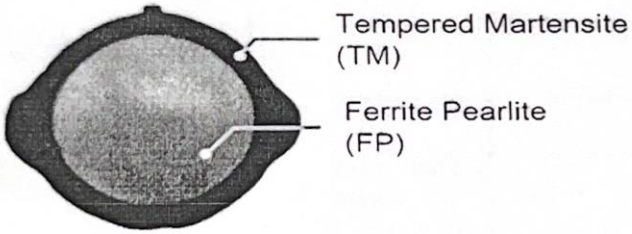
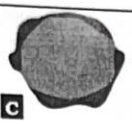
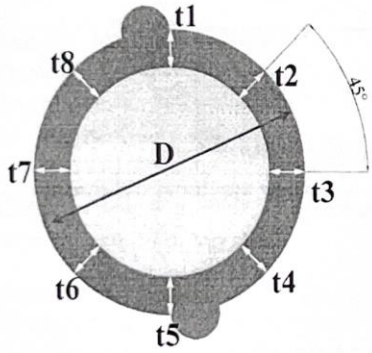


Figure 2: Cross-section of the steel bar showing the TM and FP areas

Table 2: Method of obtaining CSPD of TM Ring

Step 1: Visual Analysis of etched Cross-Section					
	 A	 B	 C	 D	
	Acceptable	*Not acceptable*	*Not acceptable*	*Not acceptable*	
1.	Is a dark grey peripheral region and light grey core seen as in Case A?			Yes/No	
2.	Does the dark grey peripheral region form a continuous outer ring?			Yes/No	
Step 2: Dimension Analysis of TM-Ring thickness					
3.	Diameter D *(mm)* of the steel bar				
4.	**Geometry** 		t_1		
			t_2		
			t_3		
			t_4		
			t_5		
			t_6		
			t_7		
			t_8		
			Measured t_{min} *(mm)*		
			Measured t_{max} *(mm)*		
5.	Is the measured $t_{min} \geq 0.07$ f ?		Yes / No		
	Is the measured $t_{max} < 0.15$ f ?		Yes / No		

SECTION 5

5.0 ADDITIONAL CONDITIONS AND PARTICULAR SPECIFICATION FOR R.C.C. WORK (DESIGN MIX CONCRETE)

Before start of RCC work concrete Mix Design shall be got done by the contractor from a NABL accredited laboratory / IIT / NIT laboratory with the approval of Engineer-in-Charge. The RCC Work shall be carried out as per the Mix Design approved by the Engineer-in-charge. The source of materials cannot be changed once the mix design is approved by the Engineer in Charge.

The contractor is encouraged to get multiple mix designs approved to ensure that the delay or problem with any source does not affect the progress of the work.

Contractor shall use water proofing material in the concrete as additive when concreting of water retaining structure or roof is done. The contractor shall ensure a separate mix design is done using the additive of water proofing compound separately for this concrete. The contractor while submitting mix design for approval shall also declare source of components.

5.1 **GENERAL**

The RCC work shall be done with RMC or Design Mix Concrete, unless otherwise specified in the nomenclature of items, wherever letter M has been indicated, the same shall imply for the Design Mix Concrete. The Ready-Mix Concrete shall be as per IS: 4926 and as per CPWD Specification and guide lines. For the nominal mix in RCC, CPWD specification shall be followed. The Design Mix Concrete will be designed based on the principles given in IS: 456, 10262 and SP 23. The contractor shall carry out design mixes for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting requirements specified. The cement shall be actually weighed as presumption of each bag having 50 kg shall not be allowed. In case of use of admixture, the mix shall be designed with these ingredients as well. The specification mentioned herein below shall be followed for Design Mix Concrete.

INGREDIENTS

i) Coarse Aggregate: As per CPWD Specifications with upto date correction slips upto last date of submission of tender including extensions, if any.

i) Fine Aggregate: As per CPWD Specifications with upto date correction slips upto last date of submission of tender including extensions, if any

ii) Water: As per requirements laid down in IS 456-2000 and CPWD specifications with upto date correction slips upto last date of submission of tender including extensions, if any

iii) Cement: OPC / PPC arranged by the contractor conforming to relevant IS Code

5.2 Admixture: Type of Admixture shall be got approved from Engineer-in-Charge. Admixtures of approved quality shall be mixed with concrete to achieve the desired workability within specified water cement ratio. The admixture shall conform to IS: 9103. The chloride content in the admixture shall satisfy the requirement of BS: 5075. The total amount of chlorides in the admixture mixed concrete shall also satisfy the requirements of IS: 456.

5.3 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.

5.4 Whenever concrete is done the sampling for testing will be done from the last pouring point of concrete and not from the plant or the source.

5.5 The shape of inferior cube moulds for sampling is known to give erroneous results. The contractor shall ensure good quality cube moulds of adequate number are available at site and any failure of test sample due to bad sampling or mould will be considered as failed concrete as the latter is contractor's responsibility.

5.6 The directions shall be given to the mix designing lab to ensure least permeability in concrete and the criteria of selecting the mix design to be used in work from the trial mix shall be governed both by permeability as well as strength. The mix designing lab shall also report the permeability of concrete in various trial mixes along with their respective strengths.

5.7 For such approval various ingredients for mix design as submitted by contractor shall be sent to the lab / test houses through the Engineer-In-Charge of the project and got it tested in approved laboratories as may be decided by the Engineer-in-charge. Sample of aggregate sent shall be preserved at site by the department. For each different set of Coarse aggregates & Fine aggregates, fresh design shall be done and got approved by Department. The admixture if used by contractor shall be at his own cost without any extra payment.

5.8 When OPC is used it shall be in combination with GGBS as follows: Part of OPC 43 grade cement (conforming to IS8112) can be substituted with Ground Granulated Blast furnace slag (GGBS) to nearly 30%. The physical and chemical properties of GGBS shall conform to IS: 12089. Uniform blending with OPC 43 grade cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS: 456-2000.

5.9 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 in lab approved by Engineer-In-Charge shall be submitted by the contractor as per direction of Engineer in charge.

5.10 **APPROVAL OF DESIGN MIX**

(i) The mix design for a specified grade of concrete shall be done for a target mean compressive strength $f_{ck} = f_{ck} + 1.65s$

where f_{ck} = Characteristic Compressive Strength at 28 days and

s = Standard deviation which depends on degree of quality control

(ii) 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 per IS relevant IS Standards / Codes.

(iii) Out of the six specimens 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.

5.11 **CHARGES FOR DESIGN MIX**

All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor.

5.12 **DESIGN MIX CONCRETE FROM FULLY AUTOMATIC COMPUTERISED CONCRETE BATCHING AND MIXING PLANT**

(i) **Proportioning Concrete**

In proportioning cement concrete, the quantity of both cement and aggregates shall be determined by weight. The cement shall be weighed separately from the aggregates. Water shall either be measured by volume in calibrated tanks or weighed. All measuring

equipment shall be maintained in a clean and serviceable condition. The amount of mixing water shall be adjusted to compensate for moisture content in both coarse and fine aggregates. The moisture content of aggregates shall be determined in accordance with IS: 2386 (Part III). Suitable adjustments shall also be made in weights of aggregates to allow for variation in weight of aggregates due to variation in moisture content.

(ii) **Production of Concrete**

The concrete shall be RMC produced in a central batching and mixing plant with, computerized printing for contents and admixture dosage. The batching plant shall be fully automatic. Automatic batcher shall be charged by devices which, when actuated by a Single starter switch will automatically start the weighing operation of each material and stop automatically, when the designated weight of each material has been reached. The batching plant shall have automatic arrangement for dispensing the admixture and shall also be capable of discharging water in more than one stage. A print out from the batching plant for every lot shall be submitted. A batching plant essentially shall consist of the following components: Separate storage bins for different sizes of aggregates, silo for cement; and water storage tank.

(a) Batching equipment

(b) Mixers

(c) Control panels

(d) Mechanical material feeding and elevating arrangements

(e) The Contractor shall arrange for inspection of automatic batching plant within seven days of issue of letter of award to facilitate inspection and approval of same by Engineer-In-Charge. Nothing extra will be paid for this.

(iii) The compartments of storage bins for aggregates shall be approximately of equal size. The cement compartment shall be centrally located in the batching plant. It shall be watertight and provided with necessary air vent, aeration fittings for proper flow of cement & emergency cement cut off gate. The aggregate and sand shall be charged by power operated centrally revolving chute. The entire plant from mixer floor upward shall be enclosed and insulated. The batch bins shall be constructed so as to ensure cleaning by self-cleansing during drawdown. The batch bins shall in general conform to the requirements of IS: 4925.

(iv) The batching equipment shall be capable of determining and controlling the prescribed amounts of various constituent materials for concrete accurately i.e. water, cement, sand, individual size of coarse aggregates etc. The accuracy of the measuring devices shall fall within the following limits:

Measurement of Cement	±2% of the quantity of cement in each batch
Measurement of Water	±3% of the quantity of water in each batch
Measurement of Aggregate	±3% of the quantity of aggregate in each batch
Measurement of Admixture	±3% of the quantity of admixture in each batch

5.13 **Mixing Concrete**

The mixer in the batching plant shall be so arranged that mixing action in the mixers can be observed from the operator's station. The mixer shall be equipped with a mechanically or

electrically operated timing, signalling and metering device which will indicate and assure completion of the required mixing period. The mixer shall have all other components as specified in IS: 4925.

5.14 **Transportation, Placing and Compaction of Concrete**

(i) Mixed concrete from the batching plant shall be transported to the point of placement by transit mixers or through concrete pumps or steel closed bottom buckets capable of carrying 6 cum concrete. In case the concrete is proposed to be transported by transit mixer, the mixer 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 as 70 m / minute at its largest diameter. The agitating speed of the agitator shall be not less than 2 rev / min. nor more than 6 rev / min. of the drum. The number of revolutions of mixing drum / blades at mixing speed shall be between 70-100 revolutions for a uniform mix, after all ingredients have been charged into drum. Unless tempering water is added, all rotation after 100 revolutions shall be at agitating speed of 2 to 6 rev / min and number of such rotations shall not exceed 250. The general construction of transit mixer & other requirements shall conform to IS5892

(ii) In case concrete is to be transported by pumping, the conduit shall be primed by pumping a batch of mortar / thick cement slurry through the line to lubricate it. Once the pumping is started, it shall not be interrupted (if at all possible) as concrete standing idle in the line is liable to cause a plug. The operator shall ensure that some concrete is always there in the pump-receiving hopper during operation. The lines shall always be maintained clean and shall be free of dents.

(iii) Materials for pumped concrete shall be batched consistently and uniformly. Maximum size of aggregate shall not exceed one-third of the internal diameter of the pipe. Grading of aggregate shall be continuous and shall have sufficient ultra fine materials (materials finer than 0.25mm). Proportion of fine aggregates passing through 0.25 mm shall be between15 & 30% and that passing through 0.125 mm sieve shall not be less than 5% of the total volume of aggregate. When pumping long distances and through hot weather, set- retarding admixtures may be used. Admixtures to improve workability can be added. Suitability of concrete through pumping shall be verified by trial mixes and by performing pumping tests.

5.15 **PREPARATION OF MIXES AS PER APPROVED DESIGN MIX AND CONDUCTING CONFIRMATORY TEST AT FIELD LAB**

The contractor shall make the cubes of trial mixes as per approved Mix design at site laboratory for all grades, in presence of Engineer in charge using sample of approved materials proposed to be used in the work prior to commencement of concreting and get them tested in his presence to his entire satisfaction for 7 days and 28 days. Test cubes shall be taken from trial mixes as follows:

For each mix, a set of six cubes shall be made from each of the three consecutive batches. Three cubes from each set of six shall be tested at age of 7 days and remaining three cubes at age of 28 days. The cubes shall be made, cured, transported and tested strictly in accordance with specifications. The average strength of nine cubes at age of 28 days shall exceed the specified target mean strength for which design mix has been approved. The evaluation of test

results will be done as per IS: 456.

5.16 **WORK STRENGTH TEST**

(i) **TEST SPECIMEN**

Work strength test shall be conducted in accordance with IS: 516 on random sampling. Each test shall be co0nducted on six specimens, three of which shall be tested at 7 days and remaining three at 28 days. Additional samples shall be prepared, if required, as per direction of Engineer in charge for testing samples cured by accelerated method as described in IS 9103.

(ii) **TEST RESULTS OF SAMPLE**

The test results of the sample shall be the average of the strength of three specimens. 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 tests shall be done at the laboratory established at site by the contractor and remaining 10% in the laboratory of Government Engineering colleges, or in any other approved laboratory as directed by the Engineer-in-charge.

5.17 **STANDARD FOR ACCEPTANCE**

Acceptance criteria of concrete shall be as per CPWD specifications and IS Code. Standard deviations values given for guidance therein will be used in such calculations.

5.18 **NON-DESTRUCTIVE TESTING (NDT) OF CONCRETE**

(i) NDT will be carried out at site for the concrete as may be needed at the frequency the same is thought to be reasonable by the Engineer in Charge. Ultrasound pulse velocity, Rebound Hammer, Core extraction and testing, etc will be the usual methods. The calibrated equipment's for this should be always available in the field lab.

(iii) Pulse velocity method of test of concrete is to be conducted for CPWD works as a routine test. The acceptance criteria which will be applicable are as per IS 13311. “Good” and “Excellent” grading are acceptable and below these grading the concrete will not be acceptable. Acceptance criteria of other NDT will be as per the relevant IS code.

(iv) 5% of the total number of RCC members in each category i.e. beam, column, slab and footing may be tested by UPV test method for establishing quality of concrete. It is suggested that test be conducted on RCC beam near joint with column, on RCC column near joint with beam, on RCC footings and rafts. On RCC rafts a suitable grid can be worked out for determining number of tests. In addition, doubtful areas such as honeycombed locations, locations, where continuous seepage is observed, construction joints and visibly loose pockets will also be tested.

(v) The test results are to be examined in view of the above acceptance criteria “Good” and “Excellent” and wherever concrete is found with less than required quality as per acceptance criteria, repairs to concrete will have to be made at the cost of the contractor. Honeycombed areas and loose pockets will be repaired by grouting using expansive concrete grout having minimum strength of M 60 by pressure injection method after chipping loose concrete in appropriate manner. Repair to concrete will be done till satisfactory results are obtained as per the acceptance criteria by retesting of the

repaired area. If satisfactory results are not obtained dismantling and relaying of concrete will be done at the cost of contractor.

(vi) After conducting the Non-destructive testing, the area if required the area shall be repaired/ refilled with the Non shrinkage Grout of M60 grade.

5.19 **MEASUREMENT:** As per CPWD specifications

5.20 **COVER / SPACER BLOCK**

The contractor shall provide approved type of support for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings, spacer blocks of required shape and size. Chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. Spacer blocks shall be cast well in advance with approved proprietary pre-packed free flowing mortars (Conbextra as manufactured by M/s Fosroc Chemicals India Ltd. or equivalent as approved by the Engineer-in-charge at his discretion) of high early strength and same colour as surrounding concrete, Pre-cast cement mortar / concrete blocks / blocks of polymer shall not be used as spacer blocks unless specially approved by the Engineer-in-charge.

SECTION 6

6.1 CONDITIONS FOR WATER

The contractor shall make his own arrangement for providing water for construction and drinking purpose. Water charges shall not be recovered on account of it. Contractor shall get the water tested from any laboratory approved by the Engineer-in-charge at regular interval as per the CPWD Specifications. All expenses towards collection of samples, packing, transportation, testing charges, etc. shall be borne by the contractor. The contractor shall arrange for silver nitrate solution at site for testing for chlorides which should be readily available at all times. The contractor shall ensure the water used should not have chloride detectable by the random field test. If required the contractor shall arrange water purifying unit to ensure water quality.

6.2 FORM WORK

6.2.1 The work shall be done in general as per CPWD Specifications.

6.2.2 Only MS centering / shuttering and scaffolding material unless & otherwise specified shall be used for all R.C.C. 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 to be approved by the Engineer-in-charge.

6.2.3 Double steel scaffolding having two sets of vertical supports shall be provided for external wall finish, cladding, etc. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding platform shall be fixed. Scaffolding shall have steel staircase for inspection of works at upper levels.

6.2.4 Nothing extra shall be paid for the centring and shuttering, circular in shape for the form work of any mean radius on the plan /elevation.

6.2.5 In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of RCC shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the Contractor.

6.2.6 As per general engineering practice, level of floors in toilets/bath, balconies, shall be kept 12 to 20mm lower than general floor as required. Shuttering should be adjusted accordingly. Nothing extra is payable on this account.

Steel shuttering as approved by the Engineer-in-charge only shall be used by the contractor. Minimum size of shuttering plates shall be 600 mm x 900 mm except for the case when closing pieces are required to complete the shuttering panels. Dented, broken, cracked, twisted or rusted shuttering plates shall not be allowed to be used on the work.

The shuttering plates shall be cleaned properly with electrically driven sanders to remove any cement slurry or cement mortar or rust. Proper shuttering oil or de-bonding compound shall be applied on the surface of the shuttering plates in the requisite quantity before assembly of steel reinforcement.

6.2.7 For the execution of centring and shuttering, the contractor shall use ‘Reebol E” chemical mould release agent of FOSROC or equivalent as shuttering oil as approved by Engineer-in-charge and nothing extra shall be paid on this account.

6.2.8 Concreting of upper floor shall not be done until concrete of lower floor has set at least for 14 days but form work and reinforcement can be taken up after the concrete has set at least for three days.

6.3 **STAINLESS STEEL CRAMPS & SILICON COATING**

6.3.1 The size & shape of the cramps shall be as per drawing and as per directions of Engineer-in-charge. The samples of steel cramps should be got approved in advance before starting the stone cladding work.

6.3.2 The sample of silicone water base repellent should be got approved from Engineer-in-charge before starting the execution. The silicone-based water repellents to be used for application shall confirm to the Manufacture's Specification as approved by Engineer-in-charge. Silicone coating shall preferably be applied in two coats working from top to bottom area by low pressure spray equipment (3-10 kg / sqm). An interval of 2 to 3 hours between the coats shall be given. In case of coatings to be applied by brush, a wide fine hair brush shall be used. The percentage rate of the item shall include cost of material, labour and all operations as above.

6.4 **REINFORCEMENT:**

6.4.1 Bar Bending Schedule: The agency shall prepare bar bending schedule drawings as per approved structural drawings and submit to Engineer-in-charge in advance for approval. The bar bending schedule shall conform to Indian Standard IS 2502-Code of Practice for Bending and Fixing of bars for Concrete Reinforcement. Before execution of work, five copies of these drawings each including for revision will be submitted to Engineer-in-charge for approval. Keeping in view the quantum of the work, the BBS shall preferably be prepared with software and one person acquainted with preparing BBS with software shall be deputed at site to speed up the work. One software shall also be installed in a computer to be kept at the disposal of CPWD.

6.5 **Expansion Joint**

General

Seismic / separation joints shall be provided where shown on the drawings. They shall be constructed within gap between the adjoining parts for the works of the width specified in the drawings.

The contractor shall ensure that no debris is allowed to enter and be lodged in seismic and separation joints.

Seismic or separation joints shall be provided with approved 100 mm thickness of compressible filler board, backer rod and polysulphide sealant compound, etc.

Board to be used in expansion joint shall be of best approved quality and shall be got approved before use. It shall have minimum density of 95 kg/cum, non-staining with less than 1% water absorption and compression recovery of 93% minimum as per the specifications.

Method of Application

100 mm thick expansion board having sufficient width as directed by Engineer-in-charge shall be provided in expansion joint before filling and finishing the expansion joint with sealant.

The expansion joint shall be cleaned and made dry completely. All loose materials shall also be removed. The joints gap shall be made uniform in width and depth after cleaning the joints. The backup materials of best quality shall be provided in position in order to produce the size of joint i.e. width and depth. The primer part of I and II shall be mixed thoroughly together in required proportion as prescribed by manufacture specification, so that a uniform mixture obtained. The mixed solution shall be applied to two sides of the joint that it covers the sides complete.

Disturbed edges of RCC members near expansion joints shall be finished with rich mortar

without any extra work includes providing required width of expansion board in the joints and measurement of expansion board only shall be taken.

Sampling criteria

Following test carried out at every 100 sqm:

(i) Density

(ii) Water absorption

(iii) Compression recovery

6.6 **STAINLESS STEEL WORK**

Stainless steel generally shall be Grade 1.4301 (SS 304) or 1.4401 (SS 316). Lower grades shall not be used. Surface finish of all the stainless-steel materials will be in 240 grit satin finish / matt finish. All stainless-steel material will have to be coated by a solution of Inox to avoid finger in prints and avoidance of settlement of environment / atmospheric dust. Before taking up any procurement / construction activity, shop drawings shall be prepared and submitted for obtaining approval from Engineer-in-Charge.

Stainless steel railing shall be provided with SS 304 grade stainless steel of 50 mm dia. of 18-gauge handrail with adequate rods parallel to handrail, balusters, flanges, end caps, newel posts with caps, etc. complete as per approved drawings and direction of Engineer–in–charge.

Stainless steel railing, both sides in staircase and external ramp with double handrail shall be used for barrier free accessibility requirements with adequate SS balusters, runners, etc. as per approved architectural drawing. Fixing shall be done by stainless steel expansion bolts of approved size and make as per Engineer-in-Charge and welding to be done by using organ welding rods and the surface being duly finished and cleaned by K2 passivation, which is nitric acid plus fluoric acid solution treatment by which the chances of corrosion will be eliminated and any burn out makes on the metal will also be eliminated.

6.6.1 **STRUCTURAL STEEL WORK**

1. Scope of work for the contractor in respect of structural steel work shall cover, but shall not be limited to the following:

(i) Structural steel work shall cover all composite structural works consisting of structural steel and RCC in combination. It shall also cover steel trusses and miscellaneous structural steel frameworks.

(ii) Preparation and submission of complete detailed shop fabrication drawings based on the architectural and structural design and drawings including revisions in them as per directions of Engineer-in-charge.

(iii) Submission of revised structural design, with calculations and detailed fabrication drawings, in case any substitution is required in the designed sections with prior approval of Engineer-in-charge.

(iv) Submission of detailed erection plan/methodology for all structural members of structural steel structure, compatible with the details of fabrication. Also, complete drawings & phase wise instructions for all the activities required to erect steel structure in final position, shall be submitted.

(v) Submission of shuttering, staging and scaffolding details for casting of deck slab over the erected “Steel Plate Girders”.

(vi) Submission of details of specialized agency for steel fabrication in workshop and erection at site

of structural steel work, which the contractor proposed to associate for structural steel work. The agency for fabrication of steel members in workshop and agency for erection of these steel members at site should preferably be same. The specialized agency should satisfy the experience requirements as stipulated in bid document elsewhere. Details should include experience of specialized agency in similar structural steel works, financial capabilities, location of workshop, fabrication facilities available in fabrication workshop, etc.

(vii) Procurement and testing of all raw structural steel materials in lots for fabrication taking into account wastage, margin, etc. including storage and upkeep of the materials.

(viii) Providing all materials, labour, tools & plant and equipment and all types of consumables required for fabrication using Gas Metal Arc welding (MIG welding) or Submerged arc welding including all necessary bolts, nuts, washers with wastage margin.

(ix) Fabrication of the steel works in accordance with the approved fabrication drawings, including all shop assembling, matching and marking. Design, manufacture / fabrication and provision of all jigs, fixings, manipulators, etc. required for the fabrication.

(x) Suitably marking, bundling and packing for transport of all fabricated materials.

(xi) Preparing and furnishing detailed bill of materials, drawing office dispatch lists &bolts.

(xii) Lists and any other lists of bought out items required in connection with the fabrication of the structural steelwork.

(xiii) Loading and transporting all fabricated steelwork and field connection materials including site unloading and erection of structure in final position with all bolts, nuts, insert plate, etc.

(xiv) The contractor shall provide general assistance during complete erection for solving any problem related to fabrication or site assembling of the structural steelwork. The contractor shall ensure the presence of the qualified and experienced Erection Engineer during complete erection work at site.

(xv) All major / minor modifications of the fabricated steel structures, as directed by the Engineer-in-charge, including but not limited to the following:

a) Removal of bends, kinks, twists, etc. for parts damaged during transportation and handling.

b) Cutting, chipping, filling, grinding, etc. if required for preparation and finishing of site connections.

c) Reaming of holes for use of higher size bolt if required.

d) Re-fabrication of parts damaged beyond repair during transport and handling or re-fabrication of parts which are incorrectly fabricated.

e) Fabrication of parts omitted during fabrications by error, or subsequently found necessary.

f) Drilling of hole, with prior approval of Engineer-in-charge, which are either not drilled at all or are drilled in incorrect location during fabrication. Drilling of holes for connections of all structural members shall otherwise be done in fabrication workshop only.

(xvi) Carry out tests in accordance with the related Specification which will be inspected by Engineer-in-charge

(xvii) Details of erection equipment machinery including capacity & specifications, tools, tackle, etc. to be used for erection purpose.

(xviii) Necessary formwork & staging required for erection of structural members including design of formwork for all the anticipated loads.

(xix) All procedures and tests on welds as per specifications and welded parts to ensure the strength

requirements of joints.

2 **Submittals:** On commencement of the work pertaining to steel structure, the Contractor shall submit the following in two sets:

a. Detailed baseline program, material procurement schedule, shop/working drawings, submission of samples, process/methodology of fabrication & delivery to site storage yard and erection at site for the approval of the Engineer-in-charge.

b. Complete fabrication drawings, schedule of quantity, cutting lists, bolt lists, welding schedules.

c. Results of any tests, as and when conducted and as required by the Engineer-in-charge.

d. Manufacturer's mill test reports/certificates in respect of steel materials, bolts, nuts and electrodes, etc. as may be applicable.

e. A detailed list of all Plant & Equipment such as cranes, derricks, winches, welding sets, all consumables, grinding and hole drilling machine, etc. their make, model, present condition and location, availability to the contractor and the ones he will employ on the job to maintain the progress of work in accordance with the contract.

f. The total number of experienced personnel of each category like fitters, welders, riggers, etc. which he intends to deploy on the project.

6.7 **STRUCTURAL STEEL WORK - QUALITY CONTROL & TESTING REQUIREMENTS**

a. The scope of work of these specifications is to establish the norms for ensuring the required Quality Control through established testing norms of the welded structural steelwork by Engineer-in-charge.

b. The contractor shall himself inspect all materials and shop work to satisfy the specified tolerance limits and Quality norms before the same are inspected by Engineer-in-charge or his authorized representative.

c. All materials, equipment and work of erection shall be subject to the inspection of the Engineer in charge who shall be provided with all facilities including labour and tools required at all reasonable times. Any work found defective is liable to be rejected.

d. No protective treatment shall be applied to the work until the appropriate inspection and testing has been carried out. The stage inspection shall be carried out for all operations so as to ensure the correctness of fabrication and good quality. Plate Girder dimensions and camber, if any, shall not be finally checked until all welding and heating operations are completed and the member has cooled to a uniform temperature.

e. Testing of material: All the materials shall be tested for mechanical and chemical properties as per various IS codes as may be applicable and shall conform to requirements specified. The cost of these tests shall be borne by the contractor.

f. Rivets, bolts, nuts, washers, welding consumables, steel forging, casting and stainless steel shall be tested for mechanical and chemical properties as per the appropriate IS Code.

g. Rolling and cutting tolerance shall be as per relevant CPWD specifications or Indian Standards. The thickness check measurements for the plate and rolled sections shall be taken at not less than 15 mm from edge. For plates thicker than 25mm, check for laminations in plates shall be carried out by ultra-sonic testing or any other specified methods.

h. Steelwork shall be inspected for surface defects and exposed edge laminations during fabrication and blast cleaning. Significant edge laminations found shall be reported to the

Engineer in charge for his decision. Chipping, grinding, machining or ultrasonic testing shall be used to determine depth of imperfection.

i. Bolted connections: Bolts and bolted connection joints with high strength bolts shall be inspected and tested according to IS: 4000. The alignment of plates at all bolted splice joints and welded butt joints shall be checked for compliance with codal requirements.

j. Welding and welding consumables: Welding procedure, welded connection and testing shall be in compliance with codal requirements. All facilities necessary for stage inspection during welding and on completion shall be provided to the Engineer in Charge or his authorized representatives. Adequate means of identification either by identification mark or other record shall be provided to enable each weld to be traced to the welder(s) by whom it was carried out.

k. The contractor shall through appropriate planning and continuous measurements in the workshop and the erection at site, ensure that the tolerance specified below are strictly adhered to. Tolerances in dimensions of components of fabricated structural steel work shall be specified on the drawings and shall be subject to the approval of the Engineer before fabrication.

l. Dimensional & Weight Tolerance: The dimensional and weight tolerance for rolled shapes shall be in accordance with IS: 1852, 808 etc. The acceptable limits of straightness for rolled or fabricated members as per IS: 7215.

m. The structural steel shall comply in all respects with the requirements of approved drawings and relevant codes and specifications and shall be procured from approved manufacturers only. It may be noted that quality of raw steel used for fabrication shall be essence of the contract & shall be strictly conforming to specified standard. Steel sections to be supplied by the manufacturers shall be tested as per codal provisions at the manufacturer's premises before dispatch. The contractor on receipt of supply in his fabrication shop shall carry out necessary control tests including ultrasonic testing as per codal requirements and verify them with the list received from manufacturers. The rejected lot shall not be used and rejected lot shall be immediately removed from fabrication shop. Only steel passed in all tests shall be used for fabrication.

n. The contractor shall supply information in the technical package regarding source / manufacturers from where procurement of steel is proposed.

o. Fabricator agency shall have in house facilities for all testing of weld, as detailed in this tender document. A Minimum of 30% of welds will be tested at random if any weld fails 30% of welds random will be re tested after the failed welds are rectified and tested till such time no weld fails the test. Liquid penetration test will be used for 90% of the test and 10% will be tested with ultrasound.

6.8 **ROAD WORK**

Road work will be governed by CPWD specification as well as MORTH Specifications and in case of discrepancy MORTH Specification will supersede.

6.9 **CONSTRUCTION JOINTS**

Construction joints shall be located and treated as per the relevant IS codes and the locations shall be intimated to the Engineer-in-Charge well in advance so that approval for the same can be obtained from the structural designer. The decision regarding the construction joint treatment and location by the structural designer of the project shall be final and binding as shall be communicated by the Engineer-in-Charge.

SECTION 7

7.0 PARTICULAR SPECIFICATIONS – ALUMINIUM WORK

7.1 Before taking up any procurement / construction activity, shop drawings (for fixing of all kind of aluminium Works showing all hardware) shall be prepared and submitted for obtaining approval from Engineer-in-Charge.

7.2 Minimum weight of aluminium section for doors, windows and ventilators shall be as per relevant standards. The section to be used shall be selected by the contractor while preparation of the shop drawing that will have to be submitted for approval of the Engineer in Charge. Only Joinery detail will be provided by the department for this purpose.

7.3 Samples of un-anodized as well as powder coated aluminium sections, microwave cured EPDM gaskets, glass, stainless steel screws, anchor fasteners, hardware and any other material or components requiring approval of samples, in opinion of Engineer-in-Charge, shall be submitted for the approval as mentioned above. The above samples shall be retained as standards of materials and workmanship.

7.4 Aluminium sections to be used for various works shall be appropriate to meet technical, structural, functional and aesthetic considerations. Aluminium work for doors, windows, ventilators, partitions, etc. shall be with extruded built up standard tubular sections / appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required diameter and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber / neoprene gasket, etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. Powder coated aluminium (minimum thickness of polyester powder coating 50 micron) section shall be used. Hinges / pivots, provision for fixing of fittings, EPDM rubber / neoprene gasket shall be provided wherever required. The polyester powder coating shall be carried out in a factory / workshop approved by engineer-in-charge.

7.5 All joints shall be accurately fabricated and be hairline in appearance. The finished surface shall be free from visible defects. All the aluminium windows / ventilators / doors shall be factory made and shall be brought to site for assembly and fixing.

7.6 All hardware used shall conform to the relevant specifications mentioned in Schedule of Quantity and as per samples approved by the Engineer-in-Charge. Design, quality, type, number and fixing of hardware shall be generally in accordance with shop drawings and as approved by the Engineer-in-Charge before use.

7.7 All doors, windows, ventilators, glazing, etc. shall be made water tight with microwave cured EPDM gaskets and weather silicone sealants to the satisfaction of the Engineer-in-Charge.

7.8 The frames shall be strictly as per architectural drawings; the corners of the frame being fabricated to the true right angles. Both the fixed frames and openable shutter frames shall be fabricated out of sections cut to required 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 aluminium cleats, stainless steel screws. etc. shall not cause

any bi-metallic reaction by providing separators, wherever required. Vertical members of the aluminium frame work shall be embedded in the floors, wherever required, by cutting and making good of the floor.

7.9 **FIXING OF ALUMINIUM FRAMEWORK**

i) The screws used for fixing fixed aluminium frames of the aluminium windows to masonry walls / RCC members and aluminium members to other aluminium members shall be of stainless steel of approved make and quality and of stainless-steel grade 304. Threads of machine screws used shall conform to requirement of I.S.4218.

ii) For the aluminium windows, the gap between the aluminium frames and the R.C.C / Masonry and also any gaps in the various sections shall be filled with weather silicone sealant DC 795 of Dow Corning or equivalent in the required bite size, to ensure water tightness including providing and fixing backer rod, wherever required. The weather silicone sealant shall be of such approved colour and composition that it would not stain or streak the masonry / R.C.C. work. It should not sag or flow and shall not set hard or dry out under any conditions of weather and shall be tooled properly. The weather silicone sealant shall be used as per the manufacturer's specifications and shall be of approved colour and shade. Any excess sealant shall be removed / cleared.

iii) Fixing of glass panes shall be designed in such a way that replacing damaged / broken glass panes is easily possible without having to remove or damage any members or interior finishing materials.

7.10 **PROTECTION AND CLEANING**

1) All glass panes shall be retained within aluminium framing by use of exterior grade microwave cured EPDM gaskets. Use of glazing or caulking compounds around the perimeter of glass will not be permitted. There shall be no whistling or rattling. Before installation of glass, Contractor shall ensure the following:

i) All glazing rebates shall be square, true to plumb, true to plane, dry and free from dust.

ii) Glass edge shall be clean and cut to exact size and grounded.

2) Glass of specified thickness in doors, windows, ventilators, fixed glazing, etc. shall be of approved make and standard quality conforming to C.P.W.D. Specifications.

7.11 GUARANTEE FOR ALUMINIUM WORK

a) The contractor shall be fully responsible for and shall guarantee proper design and performance of his installed system for a period of 10 years from the date of completion of work.

The design and installation shall be to the best international standards and shall specially take account of wind and seismic loads, storms, thermal stresses, building movements and the like.

In addition, 10-year guarantee (to be furnished in non-judicial stamp paper of value ₹ 100/-) in prescribed Performa shall be given for performance of glazed units, anodizing, EPDM / silicon gaskets and sealants. All the Guarantees shall be submitted before final payment and shall not in any way limit any other rights to correct which the Employer may have under the Contract.

b) In addition, 10% (ten percent) of the cost of all the items under sub-head ALUMINIUM WORK, as mentioned in schedule of quantities, shall be withheld from the bills towards guarantee as specified above. This amount to be withheld towards guarantee shall be in addition to the other

amounts to be withheld as mentioned elsewhere in the contract agreement. However, half of this amount (withheld) would be released after five years from the date of completion of the work, if the performance, as required, is satisfactory. The remaining withheld amount shall be released after 10 years from the date of completion of work, if the performance, as required, is satisfactory. If any defects is noticed during the guarantee period, it shall be rectified by the contractor within seven days of issue of notice to the contractor, temporarily, to the satisfaction of the CPWD / Client or any other authorized representative of client and within a period of one month the permanent rectification of the defects / replacement of defective materials should be carried out by the contractor. If not attended to, the same shall be got done through other agency at the risk and cost of the contractor and the cost, which shall be final and binding on the contractor, shall be recovered from the amount withheld towards the guarantee as mentioned above or any other amount due to the contractor. However, the amount withheld as guarantee can be released in full if irrevocable bank guarantee, from a Schedule / Nationalized Banks, of the same amount, for the guarantee period is submitted by the contractor in favour of Engineer - in-Charge of major discipline**.** The defects, if any, shall be rectified in a workmanlike manner, retaining the same aesthetics and other functional parameters of the original work.

SECTION 8

8.0 FIRE CHECK / RATED DOOR

CPWD Specification 2019 Vol. I & II with revisions/ amendments / correction slips upto last date of bid submission (including extensions, if any), National Building Code (NBC) 2016 and manufacturer's specification will be followed. Fire Check doors shall be provided in buildings wherever necessary and required as per National Building Code 2016 and as per architectural drawing provided with tender document. Unless otherwise specified elsewhere in tender document, all fire doors should be fire rated for 120 minute and doors of fire exit corridor should meet the requirement of fire exit corridor specified in NBC 2016. In general, all the services / electrical rooms / shafts shall be provided with Metal Fire Check / rated doors whereas all the lobbies, entry / exit to corridors shall be provided with the Glazed fire check / rated doors. Rooms opening in fire exit corridors may be provided with wooden fire check / rated doors. In case of any deviation is found between general principle mentioned herein and Fire check doors shown in architectural drawings (or mentioned in door & window schedule), the former i.e. general principle (mentioned herein) will be followed. If any door type or tag is not mentioned in drawings or door & window schedule, decision shall be given by Engineer in charge based on principles mentioned herein. Before taking up any procurement/construction activity, shop drawings (for fixing of all kind of doors, showing all hardware) shall be prepared and submitted for obtaining approval from Engineer-in-Charge.

8.1 The Fire check / rated Door should not collapse during the rated period of the fire under specified fire conditions. The fire door should not allow the passage of hot gases or the flames through the rebate or the gap between the door frame and shutter. The integrity or smoke sealing function is achieved in Fire Door by incorporating an "Intumescent Seal". This Intumescent Seal in the form of a strip, which under fire conditions expands many times its original size and forms a hard char which has high insulation properties and does not permit the smoke or flames to escape through the gap between the shutter and frame.

8.2 Observation, if any, made by the fire officer on the fire check/rated doors, shall be incorporated suitably. Nothing extra shall be paid on this account.

8.3 Execution of Fire Check Doors shall be carried out through the Specialized Agencies having sufficient work experience in the same field and shall be got approved from the Engineer-in-Charge well in advance. Specialized firm shall furnish all materials, labour, accessories, equipment, tool and plant and incidentals required for providing and installing the fire check/rated doors. Contractor has to select one specialized agency from list of preferred makes/brands and specialized agencies.

8.4 Fire resistance and smoke check doors shall be made of proper sizes and section as per the available opening at the site. The details shown on the drawings indicate generally the sizes of components parts and general standards. These may be varied slightly to suit the standard adopted by the manufactures. Before proceeding with manufacturing, the contractor shall prepare and submit complete manufacture and installation drawing for approval of the Engineer-in-Charge and no work shall be performed until the approval of these drawings is obtained.

8.5 The term "Fire Rating" referred in tender documents means fire rating of complete assembly of fire check door e.g. frames, shutter, vision panel, glass, hinges and other hardware. Doors will

be approved only after door passes the required tests from fire testing lab approved by the Engineer-in-Charge. Cost of sample door and testing shall be borne by contractor.

8.6 Doors shall be fabricated to size in factory. Fabricated material shall be protected against any damage during transportation. Loading and unloading shall be carried out with utmost care. On receipt of material at site, it shall be carefully examined to detect any damaged units / members. Arrangements shall be made for expeditious replacement of damage units or members. Materials found acceptable on inspection shall be repacked in crates and stored safely.

8.7 Just prior to installation, the doors shall be uncarted and stacked on edge on level bars and supported evenly. The frame shall be fixed into position true to line and level using adequate number of fasteners of approved size and manufacture and in an approved manner. The holes in concrete/masonry member for housing anchor bolts shall be drilled with an electric drilling machine only.

8.8 Stainless steel ball bearing hinges, panic bars, door trims, fire rated hydraulic door closers, handles, tower bolts, lock and other fittings shall be as per specifications given in tender document and shall be got approved from Engineer-in-Charge. All Hardwares should have a minimum 02 Years of manufacturer warrantee from the date of supply. Hardwares should pass European certificate "CE" of conformity / UL certified with required fire ratings and relevant documents to this effect shall be produced at the time of approval of samples.

8.9 The design of fire check/rated doors and material to be used in their construction has to be such that the doors shall be capable of providing an effective barrier of desired rating.

8.10 **FIRE RATED HARDWARE FOR FIRE CHECK DOORS:** All hardwares for fire check / rated doors shall also be fire rated and shall have certification from UL / CE. All fittings and fixtures shall be as mentioned in tender document and got approved from the Engineer-in-Charge before procurement well in advance and the approved samples shall be kept at site till completion of the work.

8.11 **Guarantee Bond**

The contractor shall be fully responsible for and shall guarantee proper design and performance of his installed system for a period of 5 years from the date of completion of work. The design and installation shall be to the best international standards and shall specially take account of thermal stresses, air tightness, proper closing and opening without any gaps between shutter and frames and the like in addition 5 years guarantee (to be furnished in non-judicial stamp paper of value ₹ 100/-) in prescribed proforma shall be given for material and hardware. All the Guarantees shall be submitted before final payment and shall not in any way limit any other rights to correct which the Employer may have under the Contract.

In addition, 10% (ten percent) of the cost of all the items of Fire Rated Door, as mentioned in schedule of quantities, shall be withheld from the bills towards guarantee as specified above. This amount to be withheld towards guarantee shall be in addition to the other amounts to be withheld as mentioned elsewhere in the contract agreement. However, this amount (withheld) would be released after five years from the date of completion of the work, if the performance, as required, is satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of issue of notice to the contractor, temporarily, to the satisfaction of the CPWD / client or any other authorized representative of CPWD / client

and within a period of one month the permanent rectification of the defects / replacement of defective materials should be carried out by the contractor. If not attended to, the same shall be got done through other agency at the risk and cost of the contractor and the cost, which shall be final and binding on the contractor, shall be recovered from the amount withheld towards the guarantee as mentioned above or any other amount due to the contractor**. However, the amount withheld as guarantee can be released in full against irrevocable bank guarantee, from a Schedule / Nationalized Banks, of the same amount, for the guarantee period is submitted by the contractor in favour of Government.** The defects, if any, shall be rectified in a workmanlike manner, retaining the same aesthetics and other functional parameters of the original work.

ANNEXURE-A1

GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS

The Agreement made this ..... day of ..... two Thousand..... between ..... S/o ..... (hereinafter called the Guarantor of the one part) and the PRESIDENT OF INDIA (hereinafter called Government of the other part)

WHEREAS this agreement is supplementary to a contract (hereinafter called the contract) dated ..... and made between the GUARANTOR of the one part and the Government of the other part, whereby the contractor, inter alia, undertook to render the buildings and structures in the said contract recited completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said structure will remain water and leak-proof for five years from the date of giving of water proofing treatment.

NOW THE GUARANTOR hereby guarantees that work executed by him will render the structures completely leak-proof and the minimum life of such water proofing treatment shall be five years to be reckoned from the date after the maintenance period prescribed in the contract.

Provided that the guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse of roof or alteration and for such purpose:

(a) Misuse of roof shall mean any operation which will damage proofing treatment like chopping of firewood and things of the same nature which might cause damage to the roof;

(b) Alteration shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts;

(c) The decision of the Engineer-in-Charge with regard to cause of leakage shall be final.

During this period of guarantee, the guarantor shall make good all defects in case of any defect being found, render the building water-proof to the satisfaction of the Engineer-in-Charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-Charge calling upon him to rectify the defects, failing which the work shall be got done by the Department by some other contractor at the GUARANTOR'S cost and risk. The decision of the Engineer-in-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if GUARANTOR fails to execute the water proofing or commits breach thereunder, then the GUARANTOR will indemnify the Principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the Government, the decision of the Engineer-in-Charge Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligor ..... and by ..... and for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

Signed, sealed and delivered by OBLIGOR in the presence of:

1.....

2.....

Signed for and behalf of THE PRESIDENT OF INDIA by ..... in the presence of:

1.....

ANNEXURE-A2

GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF SANITARY INSTALLATIONS / WATER SUPPLY / DRAINAGE WORK / ALUMINIUM WORK / STRUCTURAL GLAZING WORKS

The Agreement made this ..... day of ..... two Thousand..... between ..... S/o ..... (hereinafter called the Guarantor of the one part) and the PRESIDENT OF INDIA (hereinafter called Government of the other part)

WHEREAS this agreement is supplementary to a contract (hereinafter called the contract) dated ..... and made between the GUARANTOR of the one part and the Government of the other part, whereby the contractor, inter alia, undertook to render the work in the said contract structurally stable, leak proof, made of sound material, workmanship, anodizing, colouring, sealing etc.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, defective anodizing / Powder coat colouring and finishing for Five years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any leakage, seepage, cracks in pipes and guaranteed against faulty material and workmanship, defective galvanizing for five years to be reckoned from the date after the maintenance period prescribed in the contract.

The decision of the Engineer-in-Charge with regard to nature and cause of defect shall be final. During this period of guarantee, the guarantor shall make good all defects in case of any defect being found, render the building water-proof to the satisfaction of the Engineer-in-Charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-Charge calling upon him to rectify the defects, failing which the work shall be got done by the Department by some other contractor at the GUARANTOR'S cost and risk. The decision of the Engineer-in-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if GUARANTOR fails to execute the water proofing or commits breach thereunder, then the GUARANTOR will indemnify the Principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and / or cost incurred by the Government, the decision of the Engineer-in-Charge Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligor ..... and by ..... and for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

Signed, sealed and delivered by OBLIGOR in the presence of:

1.....

2.....

Signed for and behalf of THE PRESIDENT OF INDIA by ..... in the presence of:

1.....

ANNEXURE-A3

GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF PAINTING WORK

The Agreement made this ..... day of ..... Two Thousand..... between ..... S/o ..... (hereinafter called the Guarantor of the one part) and the PRESIDENT OF INDIA (hereinafter called Government of the other part)

WHEREAS this agreement is supplementary to a contract (hereinafter called the contract) dated ..... and made between the GUARANTOR of the one part and the Government of the other part, whereby the contractor, inter alia, undertook to render the buildings and structures in the said contract recited completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said structure will remain water & dust replant and fade proof for five years from the date of completion and handing over.

NOW THE GUARANTOR hereby guarantees that work executed by him will render the structures completely leak-proof and the minimum life of such water proofing treatment shall be five years to be reckoned from the date after the maintenance period prescribed in the contract.

Provided that the guarantor will not be responsible for damage caused by earthquake or structural defects or misuse of roof or alteration and for such purpose:

(a) Misuse of painting shall mean any operation which will damage painting like cleaning with harsh chemicals, Inflicted dust, or man-made moisture percolation.

(b) Alteration shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts;

(c) The decision of the Engineer-in-Charge with regard to cause of leakage shall be final.

During this period of guarantee, the guarantor shall make good all defects in case of any defect being found, render the building painting to the satisfaction of the Engineer-in-Charge at his cost, and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-Charge calling upon him to rectify the defects, failing which the work shall be got done by the Department by some other contractor at the GUARANTOR'S cost and risk. The decision of the Engineer-in-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if GUARANTOR fails to execute the painting or commits breach thereunder, then the GUARANTOR will indemnify the Principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the Government, the decision of the Engineer-in-Charge Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligor.....and by .....and for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

Signed, sealed and delivered by OBLIGOR in the presence of:

1.....

2.....

Signed for and behalf of THE PRESIDENT OF INDIA by ..... in the presence of:

1.....

LIST OF APPROVED MAKES (CIVIL)

Sl. No.	Material Description	Brand	Make
1	Ordinary Portland Cement (43 Grade) / Portland Pozzolana Cement	ACC	ACC Cements Ltd.
		Ultra Tech	Ultra Tech Cement Ltd.
		Birla	Birla Corporation Ltd.
		Dalmia	Dalmia Cement Bharat Ltd.
		Zuari	Zuari Cement Ltd.
		Jaypaee Cement	Jaypee Cement Ltd.
		J.K. Cement	J.K. Cement Pvt. Ltd.
		Ambuja Cement	Ambuja Cements Ltd.
		Century Cement	Birla Gold Cement
		Shree Cement	Shree Cement
2	CRS TMT Bars Fe-500 D or more	SAIL	Steel Authority of India Ltd.
		TISCO	Tata Steel Ltd.
		VIZAG	Rastriya Ispat Nigam Ltd.
		JSW	Jsw Steel Ltd.
		JINDAL	Jindal Steel & Power Limited
3	Plasticiser & Super Plasticiser	Contrament, Power Flow	Mc Bauchemie (India) Pvt Ltd.
		Myk Schomburg	MykArments Range of Products
		Plastiment, Sikament	Sika India Pvt Ltd.
		Conplast Sp430	Fosroc India
		Chryso - Hp / Delta / Optima	Chryso India Pvt Ltd
		Basf	Basf India Ltd.
		Cico	Cico Industries
4	Ready Mix Concrete	Ultratech	Ultratech Concrete
		ACC	ACC Ltd
		RMC (India)	RMC (India) Pvt. Ltd
		Lafarge	Lafarge India Pvt. Ltd
		Duroply	Duro Ply Industries Ltd.
		Archidply	Archid Ply Industries Ltd.
		Century Ply	Century Flush Doors
		Wuudply	M/s Prime Veneers Ltd.
		Green Lam	Greenlam Industries Ltd
		Magnum Kit	Mukund Overseas
		Dorma	Dormakaba India Pvt Ltd.
		Everite	Everite Agencies
		Dorset	Dorset Industries Pvt Ltd
		Geze	Geze Gmbh
5	Anchor / SS Stone Cladding Clamps / Dash Fasteners	Hilti	Hilti India Pvt Ltd
		Fischer	Fischer India
		Anchor	Anchor Ltd
		Nutech	Nutech Construction Chemicals
		Canon	Cannon
		Wurth	Wuerth India Pvt Ltd.
		Trixel	Axel India Pvt Ltd.
		Helfen	Helfen Anchoring System
		Bosch	Bosch Ltd
6	Structural Steel	SAIL	SAIL
		TISCO	Tata Steel
		Vizag	RINL
		JSW	JSW

7	M.S Pipe Tubes	SAIL	SAIL
		TISCO	Tata Steel
		Jindal	JSW
8	Stainless steel	Salem	Sail
		Connect	Connect Ltd.
		Ark Product Pvt. Ltd	Ark Product Pvt Ltd.
		Jindal	JSW
		SAIL	SAIL
9	Stainless Steel bolts, washers, nuts	Kundan	Kundan Industries Ltd
		Pooja	Pooja Steel Corporation
		Atul	Atul Fastners Ltd.
		Hilti	Hilti India Pvt Ltd.
10	Synthetic Enamel Paint	Premium Gloss Enamel	Asian Paint Ltd.
		Dulux	ICI Dulux Ltd.
		Nerolac	Nerolac Paints Ltd.
		Berger	Berger Paints
		Nippon	Nippon Paint India Ltd.
11	Red Oxide Zinc Chromate Primer	High-Performance Yellow Metal Primer	Asian Paint
		Dulux	ICI Dulux
		Nerolac	Nerolac
		Berger	Berger Paints
		Nippon	Nippon
12	Water Proof Cement Paint	Asian External Wall Primer	Asian Paint
		Berger	Berger Paints
		Surfa	Surfacoats (India) Pvt. Ltd.
		ICI Dulux	ICI Dulux
		Cem Colour	Snowcem Paints
13	Acrylic Smooth Exterior paint	Dulux	ICI Dulux
		Apex	Asian Paints
		Nerolac	Nerolac
		Berger	Berger
		Nippon	Nippon
14	Premium Acrylic smooth exterior paint with silicon additives	Ultima	Asian Paint
		Dulux	ICI Dulux
		Nerolac	Nerolac
		Berger	Berger
15	Cement Primer	Asian Paints	Asian Paints
		JK Primaxx	JK Cement Ltd.
		Berger	Berger Paints India Ltd.

PART – C
(SCHEDULE OF QUANTITY)

SCHEDULE OF QUANTITY (A)					
Name of work: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal					
Sl. No.	Description	Quantity	Unit	Rate (₹) i/c C.I. @9% & C.F. of 0.973	Amount
1	EARTH WORK				
1.1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge				
1.1.1	All kinds of soil	1,189.00	cum	188.25	2,23,829.00
1.2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m	874.00	cum	207.87	1,81,678.00
	SUB TOTAL				₹ 4,05,507.00
2	CONCRETE WORK				
2.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
2.1.2	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	58.00	cum	6,913.43	4,00,979.00
	SUB TOTAL				₹ 4,00,979.00
3	REINFORCED CEMENT CONCRETE WORK				
3.1	Centering and shuttering including strutting, propping etc. and removal of form for :				
3.1.2	Foundations, footings, bases of columns, etc. for mass concrete	1,079.00	sqm	415.90	4,48,756.00
3.1.3	Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	142.00	sqm	893.53	1,26,881.00

3.1.4	Lintels, beams, plinth beams, girders, bressumers and cantilevers	203.00	sqm	781.01	1,58,545.00
3.1.5	Columns, Pillars, Piers, Abutments, Posts and Struts	948.00	sqm	1,019.52	9,66,505.00
3.2	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level				
3.2.1	Thermo-Mechanically Treated CRS bars of grade Fe-500D or more	46,223.00	kg	114.38	52,86,987.00
3.3	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level				
3.3.1	Thermo-Mechanically Treated CRS bars of grade Fe-500D or more	14,814.00	kg	114.38	16,94,425.00
3.4	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland / Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge; for the following grades of concrete. Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement				
3.4.1	All works upto plinth level				
3.4.1.1	Concrete of M25 grade with minimum	315.00	cum	10,080.45	31,75,342.00

	cement content of 330 kg/cum				
3.4.2	All works above plinth level upto floor V level				
3.4.2.1	Concrete of M25 grade with minimum cement content of 330 kg/cum	76.00	cum	10,457.65	7,94,781.00
	SUB TOTAL				₹ 1,26,52,222.00
4	MASONRY WORK				
4.1	Brick work with common burnt clay F.P.S. (non-modular) bricks of class designation 7.5 in foundation and plinth in:				
4.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	107.00	cum	7,564.25	8,09,375.00
4.2	Brick work with non-modular fly ash bricks conforming to IS:12894, class designation 10 average compressive strength in super structure above plinth level up to floor V level in :				
4.2.1	Cement mortar 1:6 (1 cement : 6 Coarse sand)	97.00	cum	9,282.69	9,00,421.00
	SUB TOTAL				₹ 17,09,796.00
5	FINISHING				
5.1	12 mm cement plaster of mix:				
5.1.1	1:6 (1 cement: 6 coarse sand)	1,215.00	sqm	364.46	4,42,819.00
5.2	15 mm cement plaster on rough side of single or half brick wall of mix:				
5.2.1	1:6 (1 cement: 6 coarse sand)	1,215.00	sqm	419.30	5,09,450.00
5.3	6 mm cement plaster of mix:				
5.3.1	1:3 (1 cement: 3 fine sand)	485.00	sqm	318.65	1,54,545.00
5.4	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade				
5.4.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm)	2,915.00	sqm	181.46	5,28,956.00
5.5	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade:				
5.5.1	Two or more coats on new work.	74.00	Sqm	165.34	12,235.00
	SUB TOTAL				₹ 16,48,005.00
6	DISMANTLING AND DEMOLISHING				

6.1	Dismantling and stacking within 50 metres lead, fencing posts or struts including all earth work and dismantling of concrete etc. in base of:				
6.1.1	R.C.C.	180.00	each	258.04	46,447.00
6.2	Dismantling barbed wire or flexible wire rope in fencing including making rolls and stacking within 50 metres lead.	500.00	kg	39.03	19,515.00
	SUB TOTAL				₹ 65,962.00
7	ROAD WORK				
7.1	Supplying at site Angle iron post & strut of required size including bottom to be split and bent at right angle in opposite direction for 10 cm length and drilling holes upto 10 mm dia. etc. complete.	2,046.00	Kg	133.36	2,72,855.00
7.2	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	450.00	metre	398.56	1,79,352.00
	SUB TOTAL				₹ 4,52,207.00
	TOTAL (CIVIL)				₹ 1,73,34,678.00

GENERAL ABSTRACT

Name of Work: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal

Item No.	Sub-heads and items of work	Amount (₹)
1	Schedule "A" (Civil Portion)	₹ 1,73,34,678.00
TOTAL		**₹ 1,73,34,678.00**

PROFORMA FOR QUOTING RATES

CENTRAL PUBLIC WORKS DEPARTMENT					
NIT NO: **04/SE/Barasat/CPWD/2026-27-Recall 1**					
Name of Work: Construction of Boundary Wall of Office Campus at ICAR-DGR-RRS at West Medinipur, West Bengal					
Estimated Cost put to Tender (₹)			**₹ 1,73,34,678/-**		
Name of Contractor					
Sl. No.	Name of Component	Estimated Cost (in ₹)	Percentage above or below the estimated cost	% in Figures	Total Cost (in ₹)
1	Civil Work	₹ 1,73,34,678/-			
	Total Cost	**₹ 1,73,34,678/-**			

1. Rate filled in any form shall be considered only in % age.
2. Rate filled at any other place in the document shall not be considered.
3. No condition shall be accepted.