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Name of Work: Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed).

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This NIT for Rs. 14,69,326/- is approved.

Approved by

Executive Engineer & SM (C)-1
CPWD, Jamshedpur

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING

Forming Part of Bid Document

The Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur on behalf of President of India invites online percentage rate bids from approved and eligible contractors of CPWD enlisted in appropriate class in **(B&R)** category for the following work(s):

S.N.	NIT No.	Name of Work & location	Estimated cost put to bid Rs.	Earnest Money	Stipulated Period of Completion of work	Last date & time of online submission of bid, copy of receipt of deposition of original EMD and other Documents as specified in the bid documents	Date & Time of opening of bid
1	**13/EE & SM (C)-1/JSR/2026-27**	Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)	Civil Rs. 14,69,326/-	Rs. 29,387/-	02 (Two) months	Up to 17/11/2026 15: 00 Hrs.	17/11/2026 15: 30 Hrs.

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 items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website https://etender.cpwd.gov.in or www.cpwd.gov.in free of cost.
4. But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bid 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 Bankers cheque or Fixed Deposit Receipts or/and Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the commercial bank towards EMD in favour of Executive Engineer 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.
5. Those contractors who are not registered or have not updated their profile on the website mentioned above, are required to get registered/update their profile beforehand. The necessary training materials including the videos with step-to-step process are available on download section of https://etender.cpwd.gov.in.

6. The intending bidder must have valid Class-III digital signature certificate with encryption key (combo type) to perform any operations / transactions on the e-tendering portal / website and the bidder should download and install the emSigner on their system as per instructions available on download section ofhttps://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.

10. The tenderer (s) shall associate with himself, specialized agencies of the appropriate eligibility for components of specialized nature of items / work of major component listed below individually. Such works shall be got executed only through associated agencies specialized in these fields. If the tenderer (s) himself fulfils the eligibility criteria laid down for associated specialized agencies, and he wants to execute work himself then he will have to satisfy Engineer-in-Charge that himself had carried out such specialized similar work of required magnitude during last 7 years directly without subletting and take written approval before commencing with the work. The tenderer (s) whose tender is accepted shall indicate the name(s) of his associated specialized agencies those fulfilling the eligibility criteria laid down below as early as possible and within 60 days of award of work for the approval of the Engineer-in-charge whose decision shall be final and binding.

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

I. Insurance Surety Bond / Treasury Challan / Demand Draft/ Account Payee Banker's Cheque / Deposit at call Receipt / Fixed Deposit Receipts / Bank Guarantee of any commercial Bank against **EMD** in favour of "The Executive Engineer, NIT Project Division, CPWD, Jamshedpur".

II. Copy of **receipt for deposition of original EMD** to Division office of any Executive Engineer (including NIT issuing EE) of CPWD as per proforma given as Form-A.

III. **Enlistment Order** of the Contractor.

IV. **GST Registration Certificate of Jharkhand** if already obtained by the bidder.

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

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

V. **Undertaking on structural stability and soundness** as per prescribed format Form-F specified in NIT

VI. **Affidavit for Non-Black Listing** as per prescribed format Form-H specified in NIT

VII. **ERP Training Certificate** issued through LMS of ERP of either himself or his authorized representative through any of the CPWD Regional Training Institutes at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP Unit of CPWD.

Note: The bid uploaded without attaching the certificate of ERP Training Certificate will not be considered for opening of Technical Bid and such bids will be REJECTED.

VIII. **CPWD Form 7 duly signed** as per prescribed format specified in NIT

IX. If the bidder is a firm in partnership, the bid shall be signed by all the partners of the firm above their full type of written names and current address, or, alternatively, by a partner holding power of attorney for the firm. In the latter case, a certified copy of the power of attorney should accompany the bid. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should accompany the bid.

X. If the bidder is a limited company or a corporation, the bid shall be signed by a duly authorized person holding power of attorney for signing the bid accompanied by a copy of the power of attorney. The bidder should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

CPWD – 6 for E-TENDERING

Percentage rate bids are invited by Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur, (Telephone No: 0657-2345330, Email id- ee1jsrproject.cpwd@gmail.com) on behalf of President of India from approved and eligible contractors of CPWD enlisted in appropriate class in **(B&R)** category for the work of "Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur (SH: Additional work of Industrial shed)**"**

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. The work is estimated to cost **Rs. 14,69,326/-.**. 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 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 **02 (Two) Month** 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 drawings and structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of work.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website https:// etender.cpwd.gov.in or www.cpwd.gov.in free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified. 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 enlisting authority (in case of CPWD enlisted contractor) and by the concerned CE/SE (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, Banker's Cheque or Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks **(drawn in favour of Executive Engineer, NIT Project Division, CPWD, Jamshedpur)** shall be scanned and uploaded on the e-Tendering website within the period of bid submission.

   The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT

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

The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier.

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 whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at 03:30 PM on 17/11/2026

9. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:

   I. The bidder is found ineligible.

   II. The bidder does not upload scanned copies of all the documents stipulated in the bid document.

   III. If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.

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

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 ensure the compliance of aforesaid provisions by the sub-contractors, if any engaged by the contractor for the said work within the period specified in Schedule F.

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

The said work comprises of for "**Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)"**

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 bidders 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 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 30 (Thirty) days from the date of opening of bids.**

Further

(i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.

(ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.

(iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.

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:

(a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

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

19. For Composite Bids

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

19.1.2 The bid document will include following two components:

Part A: CPWD-6, CPWD-7 including schedule A to F for the major component of the work, Standard **General Condition of Contract (Construction Work) – 2023** as amended/ modified & corrected up to **previous day of the last date of submission of bid.**

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

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

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

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

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

EE of major component will operate Part A and Part B of the agreement.

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

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

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

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

19.1.9 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-Charge of relevant specialized component(s). The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-Charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.

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

19.1.11 Running payment for the major component shall be made by EE of major discipline to the main contractor.

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

19.1.12A. The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-Charge of major component after record of completion certificate of all other components.

19.1.12B. Final bill of whole work shall be finalized and paid by the EE of major component. Engineer(s) in charge of minor component(s) will prepare and pass the final bill for their component of work and pass on the same to the EE of major component for including in the final bill for composite contract.

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 (Telephone No: 0657-2345330, Email id- ee1jsrproject.cpwd@gmail.com) or ERP helpline no. 18001803286 or e-mail ld 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.

Brief Scope of Work

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

S.N.	Name of Work	Estimated Cost	Period of Completion
1.	Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)	₹ 14,69,326/-	2 Months

2. The work is to be carried out in the campus of Magnesium Pilot Plant at CSIR-NML, Nildih, Jamshedpur (Jharkhand).

3. Broad scope of the work is as under:

   Civil Work:

   1. Provision for weatherproofing, including providing and fixing structural steel angles/supporting framework and precoated GI profile roofing sheets, complete, to prevent entry of rainwater through existing openings between the louvers all around the perimeter.
   2. Paving of the remaining designated area around the building with a width of 3.00 m, including providing 200 mm thick granular sub-base and 60 mm thick factory-made M-30 grade cement concrete interlocking paver blocks, complete.
   3. Provision and fixing of stainless-steel bird-proof wire mesh at the required openings and ventilation areas, including necessary supporting frames and fixing arrangements, complete.
   4. Provision for closure of existing trenches with 650 mm wide chequered plates, including necessary supporting, fixing and associated works, complete.
   5. Provision of Shade over rolling shutter.

4 The proposed work is to be carried out in fully operational campus and workers as well as other staffs may have to go through security checks. Working during night may also be restricted. Contractors are advised to inspect the site before bidding to have an idea of the factors which may affect the rates of the contractor. Claim of any shape (including time) on account of the difficulties faced at site as well as restriction on working hours shall not be entertained.

5 Work shall be executed according to General Conditions of Contract-2023 for Construction Works for Central P.W.D. Works with correction slips up to last date of submission of bid available separately at printer's outlets. The bidder may obtain the address of the outlets from the Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur. The General Conditions of Contract for Central Public Works Department is also available on website www.cpwd.gov.in

Receipt of Deposition of Original EMD

(Receipt No...../date.....)

Name of work: Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)

1. NIT No: 13/EE & SM (C)-1/JSR/2026-27
2. Estimated Cost: Rs. 14,69,326/-
3. Amount of Earnest Money Deposit: Rs. 29,387/-
4. Last date of submission of bid: 17/11/2026 upto 15.00 hours.
5. **EMD Drawn in favour of Executive Engineer, NIT Project Division, CPWD, Jamshedpur.**

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)

Signature, Name and Designation
of EMD receiving officer
along with Office stamp
(EE/AE(P)/AE/AAO)

Form-F

Undertaking on structural stability and soundness of already completed buildings and infrastructure projects.

Name of work:- Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)

NIT No :- 13/EE & SM (C)-1/JSR/2026-27

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

On non-judicial stamp paper of minimum Rs. 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……(name of division)……., CPWD on behalf of the president of India (hereinafter called "The Government") has invited bids under ……(NIT number)……dated ……for…… (name of work)……..The Government has further agreed to accept irrevocable Bank Guarantee for Rs……(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……(name of division)……., CPWD on behalf of the president of India (hereinafter called "The Government") has entered into an agreement bearing number……with……(name and address of contractor)……(hereinafter called "the contractor") for execution of work……(name of work)……..The Government has further agreed to accept an irrevocable Bank Guarantee for Rs……(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 bank)……(hereinafter referred to as "the Bank") hereby undertake to pay to the Government an amount not exceeding Rs. …… (Rupees…… Only) on demand by the Government within 10 days of the demand.
3. We, ……(indicate the name of the Bank)……., do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the Government stating that the amount claimed as required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. …… (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 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 Bank Guarantee 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(s) or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

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(s).

8. We, …… (indicate the name of the Bank)……., undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This 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 Rs. …… (Rupees ……..only) 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……

Witness :

1. Signature……
Name and address

Authorized signatory
Name
Designation
Staff code no.
Bank seal

1. Signature ……
Name and address

* Date to be worked out based on the basis of validity period of 90 days from the date of submission of tender.

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

PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

Tender for the work of: "**Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed) "**

(i) To be uploaded by 15:00 hrs. on 17/11/2026 to the Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur upload at **http://etender.cpwd.gov.in or www.cpwd.gov.in.**

(ii) To be opened in presence of tenderers who may be present at 15:30 hrs. on 17/11/2026 in the office of the Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur.

TENDER

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

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

I/We agree to keep the tender open for **30 (Thirty) days from the due date of its opening of bid** 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 Bond, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a commercial Bank, is scanned and uploaded.

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 or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

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

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

Dated

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

ACCEPTANCE

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

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

(a)

(b)

(c)

For & on behalf of the President of India

Signatures

Designation

Dated

PROFORMA OF SCHEDULES (Civil)

SCHEDULE 'A'

Schedule of quantities (as per PWD-3):	Page No. 60-61

SCHEDULE 'D'

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

SCHEDULE 'E'

Reference to General Conditions of contract.		Applicable GCC is GCC Construction Works - 2023, as modified and corrected up to previous day of the last date of submission of the tender.
Name of work		**Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)**
Estimated cost of work		Civil: Rs. 14,69,326/-
(i)	Earnest Money	Rs. 29,387/- (to be returned after receiving performance guarantee)
(ii)	Performance Guarantee (PG)	(i) 5% of Estimated cost put to tender (ECPT) or 5% of tendered amount whichever is higher. (ii) Additional Performance Guarantee (APG): The amount of additional Performance Guarantee (APG) shall be equivalent to the difference between the 80% amount of ECPT and quoted amount. **Note: Please refer OM No. DG/CON/Construction 2023/20 dated 27.02.2026 for more details.**
(iii)	Security Deposit	2.5 % of tendered value

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:		
Officer inviting tender:		Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur.
Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3:		See below (Refer Clause-12)
Definitions:		
2(v)	Engineer-in-Charge:	Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur or successor thereof
2(viii)	Accepting Authority:	Executive Engineer & Senior Manager (C)-1, CPWD, Jamshedpur or successor thereof
2(x)	Percentage on cost of materials and labour to cover all overheads and profits:	15%
2(xi)	Standard Schedule of Rates	**Civil**: DSR - 2023 with up-to-date correction slips up to last date of submission of bids and Market Rates.
2(xii)	Department	Central Public Works Department

9(ii)	Standard CPWD contract Form GCC 2023, CPWD Form 7 as modified & corrected up to	Standard CPWD contract form **GCC Construction Works-2023,** CPWD Form 7 as modified & corrected up to previous day of the last date of submission of the tender.

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:	7 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:	SE cum PD - Jamshedpur or successor thereof

Clause 5

Authority to decide:

(i)	Authority to convey the decision of shifting of milestone and Extension of time	:	EE & SM (C)-1, CPWD, JAMSHEDPUR or his successor thereof
(ii)	Authority to decide Rescheduling of mile stones and extension of time	:	SE cum PD - Jamshedpur or his successor thereof
(iii)	Shifting of date of start in case of delay in handing over of site.	:	SE cum PD - Jamshedpur or his successor thereof

Time allowed for execution of work	02 (Two) months
Number of days from the date of issue of letter of acceptance for reckoning date of start	07 (Seven) Days or the date of handing over of site whichever is later

Schedule of handing over of site

Part	Portion of site	description	Time period for handing over reckoned from date of issue of letter of intent.
Part A	Portion without any hindrance	Full site is available with the Client	7 days
Part B	Portions with encumbrances	NIL	-
Part C	Portions dependent on work of other agencies	NIL	-

Clause 6

Computerized Measure Book (CMB) / Electronic Measurement Book (EMB) (i) Mode of Measurement: CMB / EMB	Applicable - Electronic Measurement Book

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	Rs. 15 Lakh for civil

Note: -Engineer in charge at his discretion may release monthly payment even at a lesser amount subject to availability of budget grants from client. But the contractor can not claim it as a matter of right and no interest payment as per Clause-7 is permitted unless the work executed is beyond value of Gross work done stipulated under clause 7 in schedule F and bill is pending in Division Office.

Clause 7A

Whether Clause 7A shall be applicable -	Yes, a) 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. b) Any other document(s) required as per statutory requirement and/or as directed by Engineer-in-Charge. c) In case, any of the documents submitted by the contractor is found false/forged at a later date, action for debarment of contractor will be taken by the SE/CE concerned.

Clause 8

I.	Details of consultancy work/building/infrastructure project to be completed early for use:	Full scope as per NIT conditions
II.	Competent authorities to inspect and issue part / final completion plans	EE & SM (C)-1, CPWD, JAMSHEDPUR or his successor thereof

Clause 8A

Authority to decide compensation on account if contractor fails to submit completion plans.	Engineer-in-charge. (0.1% of tendered amount or Rs. 1.00 Lakh whichever is more)

Clause 10A

List of testing equipment to be provided by the Contractor at site lab	**As per list attached as Appendix-1**

Clause 10B

Whether Clause 10 B (ii) shall be applicable	No

Clause 10C

Component of labour expressed as percent of value of work	25%

Clause 10CC	Not Applicable

Clause 11

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

Clause 12

12.2 (c)		Deviation Limit beyond which clauses 12.2 (c) shall apply for building work	100% (Hundred percent)
12.4	(i)	Deviation Limit beyond which clauses 12.2 (c) shall apply for foundation work (except items mentioned in earth work sub-head in DSR and related items)	100% (Hundred percent)
	(ii)	Deviation Limit for items mentioned in earth work sub-head of DSR and related items.	100% (Hundred percent)

Clause 16

Competent Authority for deciding reduced rates	1. SE cum PD - Jamshedpur or his successor thereof - (up to 5% of total tendered amount) 2. ADG - Patna - (Beyond 5% of total tendered amount)

Clause 18

List of mandatory machinery, tools & plants to be deployed by the Contractor at site	**As per list attached as Appendix-2**

Clause 19

Clause 19 C	-	EE & SM (C)-1, CPWD, JAMSHEDPUR to decide penalty for each default
Clause 19 D	-	EE & SM (C)-1, CPWD, JAMSHEDPUR to decide penalty for each default
Clause 19 G	-	EE & SM (C)-1, CPWD, JAMSHEDPUR to decide penalty for each default
Clause 19 K	-	NA (For less than works ECPT Rs. 5 Cr.)

Clause 25

Settlement of Dispute by Conciliation and Arbitration

Sl. No.		
(i)	Conciliator	ADG – Patna or his successor thereof
(ii)	Arbitrator Appointing Authority	ADG Patna or successor thereof
(iii)	Place of Arbitration	Jamshedpur

Clause 38

(i)	(a)	Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2023 printed by CPWD.	
(ii)		Variations permissible on theoretical quantities:	
	(a)	Cement, For works with estimated cost put to tender more than Rs. 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

Recovery rates for quantities beyond permissible variation:

S. No.	Description of Item	Rates in figures and words at which recovery shall be made from the Contractor		
		Excess beyond permissible variation	Less use beyond permissible variation	
			Recovery rate i/c GST (Rs/MT)	Recovery rate without GST (Rs/MT)
1	Cement (PPC)	Nil	Not Allowed	
2	Steel Reinforcement	Nil		

Appendix – 1

List of testing equipment to be provided by the Contractor at site lab

S.N.	Equipment	Numbers (Minimum)
1	Any equipment for site tests as per Direction of Engineer-in-charge.	As per requirement.

Note: Not less than 90% tests for material be performed at site lab with above stated equipment's, however at least 10% testing of materials shall be got done from external laboratories. However, for the tests to be carried out by the external laboratories, the contractor shall supply free of charge all the materials required for testing, including transportation. If the tests which were to be conducted in the site laboratory, are conducted in other laboratories for any reasons the cost of such tests shall be borne by the contractor

Appendix –II

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

S.N.	Equipment	Numbers (Tentative)
1.	Reinforcement / Steel cutting machines	1
2.	Welding machines 400 Ampere	1
3.	Double steel scaffolding and staging materials	As per requirement.
4.	Drilling machine	1
5.	Any other machinery required for completion of the work as per direction of Engineer-in-Charge.	As per actual requirement

Note:

(i) The above list is only indicative and not exhaustive. Any other machinery/ equipment desired for required progress shall be arranged by the agency as per direction of Engineer-in-Charge.

(ii) All dial guage reading equipment shall be calibrated with NABL accredited lab or weight & measure department, Jamshedpur, Jharkhand.

General Requirements for the Tender

Name of Work: Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR-NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed)

1. The tenderer is advised to read and examine the tender documents for the work and the set of drawings available with Engineer-in-charge. He should inspect and examine the site and its surroundings by himself before submitting his tender.
2. Separate schedule of quantity is included in this tender for civil and E & M items of work. If the tenderer wants to offer any unconditional rebates on their rates, the same should also be offered in the respective components of civil and electrical schedule separately. The contractor shall quote the percentage rates in figures and words accurately so that there is no discrepancy in rates written in figures and words.
3. Time allowed for the execution of work is 2 Month.
4. The contractor(s) shall submit a detailed program of execution in accordance with the master programme/ milestone within fifteen days from the date of issue of letter of acceptance.
5. Quality of the project is of utmost importance. This shall be adhered to in accordance with the provisions of CPWD specifications and guidelines given in the relevant paras.
6. Ready mix concrete may be used instead of batch mix concrete with prior approval of Engineer in Charge. Nothing extra shall be paid for this. Ready mix concrete may be procured from Ready mix concrete plant of repute manufactures as mentioned in particular specifications available within 30 km distance.
7. The contractor (s) shall make his own arrangements for electricity and water required for the execution of work and nothing extra shall be paid on this account.
8. **Cement shall be arranged by the contractor himself.**
9. **Steel Reinforcement shall be arranged by the contractor himself.**
10. The Contractor shall engage specialized agencies/firms for specialized items of work such as Water Proofing, Aluminium Works, Structural Glazing, Sanitary Installations and Plumbing, Fire Doors, Water Filtration Plants, STP Execution, E&M specialized Components, Geotechnical Investigation, Topographical Survey, and Structural Design. Only those specialized agencies/firms which have satisfactorily executed similar works as per the following eligibility criteria during the last seven years shall be considered eligible for these specialized works- :

    (a) Three works each costing not less than 40% of estimated cost for concerned sub head.

    Or

    (b) Two works each costing not less than 60% of estimated cost for concerned sub head.

    Or

    (c) One work costing not less than 80% of estimated cost for concerned sub head.

    The value of specialized executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion of specialized work to up to one month of award of this work.

    Approval of the specialized agencies for each specialized work shall be obtained from the Engineer-in-Charge within one month of award of work. Even if, such specialized items of work shall be executed by the specialized

agencies, the work shall be deemed to be executed by the tenderer for all purposes and the responsibility of the quality of items of works executed etc. shall continue to be that of the tenderer only.

11. Contractor has to deploy required Plant and machinery on the project. Minimum number of plant and machinery to be deployed by him is indicated at Page No. 41. In case the contractor fails to deploy the plant and machinery whenever required and as per the direction of the Engineer-in-charge, he (Engineer-in-charge) shall be at a liberty to get the same deployed at the risk and cost of the contractor.

12. The contractor shall submit the running bills in the shape of the computerised MB in pages ofA-4 size as per the standard format of department and shall act as per modified Clause 6 ofCPWD-7

13. The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time.

PART – B
(Civil Works)

ADDITIONAL CONDITIONS

1 Unless otherwise specified, CPWD Specifications 2019 volume I&II with up-to-date corrections slips shall be followed in general. Any additional item of work, if taken up subsequently, shall also conform to the relevant CPWD specifications mentioned above. In case, there is any difference or discrepancy between the description of items as given in the schedule of quantities, particular specifications for individual items of work (including special conditions) and I.S. Codes etc., the following order of preference shall be observed:

(ii) Description of items as given in Schedule of quantities

(iii) Additional conditions
(iv) Additional specifications
(v) General Conditions of Contract for CPWD works2023 with up-to-date correction slip and CPWD Specifications
(vi) I.S. Codes
(vii) Decision of Engineer-in-Charge

2 INSPECTION OF SITE: 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, labour etc. constraints put by local regulations, if any, weather conditions at site, general ground / subsoil conditions etc. or any other circumstances which may affect or influence their tenders.

3 The Contractor shall, if required by him, before submission of the tender, inspect the drawings in the Office of the Engineer-in-Charge. 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 tender 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. No claim, whatsoever, shall be entertained from the Contractor, if the data or information furnished in tender document is different or in-correct otherwise or actual working drawings are at variance with the drawings available for inspection or attached to the tender documents. It is presumed that the Contractor shall satisfy himself for all possible contingencies, incidental charges, wastages, bottlenecks etc. likely during execution of work and acts of coordination, which may be required between different agencies. Nothing extra shall be payable on this account.

4 Unless otherwise specified in the schedule of quantities, the rates of all items of work shall be considered as inclusive of executing all work, wherever required, in or under water and / or liquid mud, including bailing out water encountered from any source such as rain, floods, tides ingress of water through pressure relieving sleeves left during PCC at base, sub- soil water table being high and / or any other source whatever. During entire execution of work, the contractor shall carry out dewatering (at his own cost), as and when required or specified herein. Nothing extra shall be payable on this account.

5 The nomenclature of the item given in the schedule of quantities gives in general the work content but is not exhaustive i.e. does not mention all the incidental works required to be carried out for complete execution of the item of work. The work shall be carried out , all in accordance with true intent and meaning of the CPWD Specifications and the drawings taken together, regardless of whether the same may or may not be particularly shown on the drawings and / or described in the Specifications, provided that the same can be reasonably inferred there from. There may be several

incidental works, which are not mentioned in the nomenclature of each item but will be necessary to complete the item in all respect. All these incidental works / costs which are not mentioned in item nomenclature but are necessary to complete the item shall be deemed to have been included in the rates quoted by the contractor for various items in the schedule of quantities. No adjustment of rates shall be made for any variation in quantum of incidental works due to variation / change in actual working drawings. Also, no adjustment of rates shall be made due to any change in incidental works or any other deviation in such element of work (which is incidental to the items of work and are necessary to complete such items in all respects) on account of the directions of Engineer-in-Charge. Nothing extra shall be payable on this account.

6 Unless otherwise provided in the Schedule of Quantities, the rates quoted by the Contractor shall be inclusive of carrying out the works at and / or up to all heights, lifts, leads and depths. The contractor shall make all arrangements for the same. Nothing extra shall be payable on this account.

7 Accommodation for labour huts, site office, stores, installation of batching plant etc. will be given at site as per availability only. In case, space is not available at the site of work, Contractor shall make his own arrangements to provide such accommodation as per the rules of the local bodies. He shall make his own arrangements for stores, field office etc. Before tendering, he shall visit the site and assess the manner in which he is able to arrange the above facilities. The Engineer-in-Charge shall in no way be responsible for any delay on this account and no claim, whatsoever, on this account shall be entertained. Nothing extra shall be payable on this account.

8 **SUBMISSIONS IMMEDIATELY AFTER AWARD OF WORK**

The Contractor shall submit the following details immediately after award of work.

a. List of Equipment's proposed to be deployed for this work.
b. Site organization chart with Bio-data of Project Manager and Key Personnel proposed to be deployed at site.
c. A certified copy of Power of Attorney in the name of person who has signed the tender document.
d. The details of shuttering and scaffolding material proposed to be used to complete the entire R.C.C structural work commensurate with overall stipulated period for completion of work.
e. The contractor shall prepare and submit a tentative integrated Bar Chart (for Civil and E & M services) clearly indicating the various activities, in a manner to complete the entire work covered under this tender within the stipulated period.

9 The Contractor shall keep himself fully informed of all acts and laws of the Central & State Governments, all orders, decrees of statutory bodies, tribunals having any jurisdiction or authority, which in any manner may affect those engaged or employed and anything related to carrying out the work. The contractor shall adhere to all the rules & regulations and byelaws laid down by local Bodies and any other statutory bodies, during the execution of work. The Contractor shall also adhere to all traffic restrictions notified by the local authorities. All statutory taxes, levies, charges (including water and sewerage charges, charges for temporary service connections and / or any other charges) payable to such authorities for carrying out the work, shall be borne by the Contractor. The Contractor shall arrange to give all notices as required by any statutory / regulatory authority and shall pay to such authority all the fees that is required to be paid for the execution of work. He shall protect and indemnify the Department and its officials & employees against any claim and /or liability arising out of violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives. Nothing extra shall be payable on these accounts. The fee payable to statutory authorities for obtaining the various permanent service connections and Occupancy Certificate for the building shall be borne by the Department.

10 Royalty at the prevalent rates shall be paid by the Contractor or the RMC supplier as per the terms of supply between them on all materials such as boulders, metals, sand and bajri etc. collected by him for the execution of the work, directly to the revenue authority of the state government concerned. Nothing extra shall be payable on this account.

11 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. No delay and no claim of any kind shall be entertained from the Contractor, on account of variation in the foreign exchange rate.

12 The Contractor shall assume all liability, financial or otherwise in connection with this contract and shall protect and indemnify the Department from any and all damages and claims that may arise on any account. The Contractor shall indemnify the Department against all claims in respect of patent rights, royalties, design, trademarks of name or other protected rights, damages to adjacent buildings, roads or members of public, in course of execution of work or any other reasons whatsoever, and shall himself defend all actions arising from such claims and shall indemnify the Department in all respect from such actions, costs and expenses. Nothing extra shall be payable on this account.

13 **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, architects, structural consultants, Department etc. besides providing space for names of other Contractors, Sub-Contractors and specialized agencies. Nothing extra shall be payable on this account.

14 **INTEGRATED SERVICE DRAWINGS**

The contractor shall prepare following drawings for various civil and electrical services showing details of lay out plan including sectional elevations and submit the same for the approval of Engineer-in-Charge.

a) Plumbing drawings GI/SS and CI line
b) Layout of conduits, switchboard, Distribution boxes etc.

Subsequently Integrated drawings shall be prepared and submitted by the Contractor as per local Byelaws and as per the site conditions to facilitate convenient installation as well as maintenance. Nothing extra shall be payable on this account.

15 **PROTECTIVE / SAFETY MEASURES**

Necessary protective and safety equipment's shall be provided to the Site Engineer, workers & Supervisory staff by the Contractor at his own cost and to be used at site.

The Contractor shall do proper sequencing of the various activities by suitably staggering the activities within various pockets in the plot so as to achieve early completion. The agency may deploy adequate equipment's, machinery and labour as required for the completion of the entire work within the stipulated period specified. Also, ancillary facilities shall be provided commensurate with requirement to complete the entire work within the stipulated period. Nothing extra shall be payable on this account. Adequate number/sets of equipment's in working condition, along with

adequate stand-by arrangements, shall be deployed during entire construction period. It shall be ensured by the Contractor that all the equipment's, Tools & Plants, machineries etc. provided by him are maintained in proper working conditions at all times during the progress of the work and till the completion of the work. Further, all the constructional tools, plants, equipment's and machineries provided by the Contractor, on site of work or his work shop for this work, shall be exclusively intended for use in the construction of this work and they shall not be shifted / removed from site without the permission of the Engineer-in-Charge.

16 **DISPLAY PERMISSIONS**

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.

17 **REMOVAL OF 'MULBA' ETC. FROM SITE**

The Contractor shall not stack building material / mulba / muck on any other land outside site barricading. 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 the Contractor shall obtain regulations of the concerned authorities and all necessary permissions in this regard from the local bodies. Nothing extra shall be payable on this account. The contractor shall be liable to pay any charges/penalties as may be levied by local bodies. 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.

18 **TOOLS AND PLANTS**

The Department shall supply no tools and plants including any special T&P etc. and the Contractor shall have to make his own arrangements at his own cost. No claim of hindrance (or any other claim) shall be entertained on this account.

19 **COORDINATION WITH OTHER AGENCIES**

The Contractor shall conduct his work so as not to interfere with or hinder the progress of the work being performed by other Contractors or by the Engineer-in-Charge. As far as possible, he shall arrange his work and place, so as not to interfere with the operations of other Contractors or shall arrange his work with that of the others, in an acceptable and coordinated manner and shall perform it in proper sequence.

20 **FACILITIES BY THE CONTRACTOR TO THE OTHER CONTRACTORS / AGENCIES**

The Contractor shall cooperate with and provide the facilities to the sub-Contractors and other agencies working at site for smooth execution of the work. The Contractor shall

a) Allow use of scaffolding, toilets, sheds etc.
b) Properly co-ordinate their work with the work of other contractors.
c) Provide control lines and benchmarks to his Sub-Contractors and the other Contractors.
d) Provide electricity and water at mutually agreed rates.
e) Provide hoist and crane facilities for lifting material.
f) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
g) Adjust work schedule and site activities in consultation with the Engineer-in-Charge and other Contractors to suit the overall schedule completion.

h) Resolve the disputes with other Contractor amicably and the Engineer-in-Charge shall not be made intermediary or arbitrator. The contractor shall indemnify the Department against any claim(s) arising out of such disputes.

21 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 wastewater, 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. Nothing extra shall be payable on this account.

22 **PREVENTION OF NUISANCE AND POLLUTION**

The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general. The Contractor shall take all care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Engineer-in-Charge. The Contractor shall use such methodology and equipment's for execution of the work, so as to cause minimum environmental pollution of any kind during construction, to have minimum construction time and minimum inconvenience to road users and to the occupants of the buildings on the adjacent plot and public in general, etc. He shall make good at his own cost and to the entire satisfaction of the Engineer in Charge any damage to roads, paths, cross drainage works or public or private property whatsoever caused, due to the execution of the work or by traffic brought thereon, by the Contractor. Further, the Contractor shall take all precautions to prevent any pollution of streams and waterways. All waste or superfluous materials shall be carted away by the Contractor, entirely to the satisfaction of the Engineer-in-Charge. 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. **No claim what so ever on account of site constraints mentioned above or any other site constraints not specifically stated here, shall be entertained from the Contractor. Therefore, the Contractors are advised to visit site and get first hand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account**.

23 **SCAFFOLDING**

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. It shall be designed to take all incidental loads. It should cater to the safety features for workmen. Nothing extra shall be payable on this account. It shall be ensured that no damage is caused to any structure due to the scaffolding.

24 The Contractor shall maintain all the work in good condition till the completion of entire work. The Contractor shall be responsible for and shall make good, all damages and repairs, rendered necessary due to fire, rain, traffic, floods or any other causes. The Engineer-in-Charge shall not be responsible for any claims for injuries to person/workmen or for structural damage to property

happening from any neglect, default, want of proper care or misconduct on the part of the Contractor or of any other of his representatives, in his employment during the execution of the work. The compensation, if any, shall be paid directly to the Department / authority / persons concerned, by the Contractor at his own cost.

25 For completing the work in time, the Contractor might be required 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 labourers 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.

26 In case of flooding of site on account of rain or any other cause and any consequent damage, whatsoever, no claim financially or otherwise shall be entertained not withstanding any other provisions elsewhere in the contract agreement. Also, the Contractor shall make good, at his own cost, the damages caused, if any.

27 The Contractor shall render all help and assistance in documenting the total sequences of this project by way of photography, slides, audio / video recording etc. Nothing extra shall be payable to Contractor on this account. However, cost of photographs, slides, audio / videography etc. shall be borne by the Department. The original films shall be the property of the Department. No copy shall be prepared without the prior approval of the Engineer- in - Charge.

28 The Contractor shall make all necessary arrangements for protecting from rains, the work already executed and for carrying out the further work, during monsoon including providing and fixing temporary shelters, protections etc. Nothing extra shall be payable on this account. Also, no claims for hindrance shall be entertained on this account.

29 **INCIDENTAL CHARGES**

For all items of work, the entire incidental charges of any kind including cartage, storage, wastage and safe custody of material etc. shall be borne by the Contractor and no claim of any kind, whatsoever, shall be entertained on this account.

30 **STORAGE OF MATERIAL AT SITE**

No inflammable materials including P.O.L shall be allowed to be stored in huge quantity at site. Only limited quantity of P.O.L may be allowed to be stored at site subject to the compliance of all rules / instructions issued by the relevant authorities and as per the direction of Engineer -in- Charge in this regard. Also all precautions and safety measures shall be taken by the Contractor for safe handling of the P.O.L products stored at site. All consequences on account of unsafe handling of P.O.L shall be borne by the Contractor.

31 **NO WAIVING OF LEGAL RIGHTS AND POWERS**

The Engineer-in-Charge shall not be precluded or stopped from taking any measurements, and framing of estimates or detaining any certificates made either before or after the completion and acceptance of the work and payment, from showing the true amount and character of the works performed and materials furnished by the Contractor and from showing that any such measurements, estimates or certificates untrue or incorrectly made and that Engineer-in-Charge shall not be precluded or stopped from recovering from the Contractor such damages as it may be sustained by reasons of his failure to comply with the terms and conditions of the contract.

32 **FINAL TESTING OF THE INSTALLATION**

The Contractor shall demonstrate trouble free functioning of all the Civil and E & M installations and services. The Engineer-in-Charge or his authorized representatives shall carry out final inspection

of the various Civil and E & M services and installations. Any defect(s) noticed during demonstration shall be rectified by the Contractor at his own cost to the entire satisfaction of the Engineer-in-Charge. Nothing extra shall be payable on this account.

33 Unless otherwise provided in the Schedule of quantities, the rates of tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra shall be payable to him on this account. Payment for centering, shuttering, however, if required to be done for heights greater than 3.5 m shall be admissible at rates arrived at in accordance with clause 12 of the agreement if not already specified.

34 The contractor shall make his own arrangements for water and for obtaining electric connections if required and make necessary payments directly to the department concerned.

35 Other agencies doing work related with this project will also simultaneously executed the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, openings etc. for laying, burying in the work pipes, cables, conduits, clamps, boxes and hooks for fan clamps, etc. as may be required for other agencies conduits for Electrical wiring/cables will be laid in a way that they leave enough space for concreting and do not adversely affect the structural members. Nothing extra over the agreement rates shall be paid for the same.

36 Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restrictions/instructions and nothing extra shall be payable on this account.

37 (a) The building for components will be carried out in the manner complying in all respect with the requirements of relevant by laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-Charge and nothing extra will be paid on this account.
(b) The contractor shall comply with proper and legal orders and directions of the Local or Public authority or Municipality and abide by their rules and regulations and pay all fees and charges, which he may be liable.

38 The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.

39 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 (or) extra cement considered in consumption on this account.

40 Testing of materials:
Samples of various materials required for testing shall be provided free of charge by the Contractor including its transportation to testing laboratories. **The cost of tests for all materials shall be borne by the Contractor**. **The test shall be carried out by the contractor from the approved laboratory as mentioned in NIT page no. 39 para 5.8**.
Testing of materials shall primarly be got conducted from Govt. labs & however, in case of exigencies of some works, testing may be permitted from the approved Private Labs (NABL Accridated only) / Any govt. engineering Institution on written request by the Contractor. However, permission for testing materials from Private Labs (NABL Accridated only) depends solely at the discretion of the NIT approving authority.

41 The Structural and Architectural drawings shall be all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities, appendent with the tender and Architectural drawings relating to the relevant item, the former shall prevail unless and otherwise given in writing by the Engineer-in-Charge.

42 For the purpose of recording measurements and preparing running account bills, the abbreviated nomenclatures indicated in the publications "Abbreviated nomenclature of item of DSR-2023" with up-to-date correction slips shall be accepted. The abbreviated nomenclature shall be taken to cover all the materials and operations as per the complete nomenclature of the relevant items in the agreement and other relevant specifications.

In the case of items for which abbreviated nomenclature is not available in the above cited publication and also in case of extra and substituted items of works for which abbreviated nomenclature is not provided in the agreement, the full nomenclature of the items shall be reproduced in the measurement books and bill forms for running account bill. The full nomenclature of the items shall be adopted in preparing abstract of final bill form in the measurement book and also in the bill form for final bill.

43. Public Procurement (Preference to Make in India) order 2017 issued by competent authority of Government of India shall be implemented during selection of materials and execution of work accordingly.

45. Agency shall ensure availability of mining materials and procure the same in advance. No claim shall be entertained on account of non-availability of mining materials (sand, stone chips etc.) monsoon.

46. Agency shall quote their rate considering 18% GST on work contract.

SPECIAL CONDITIONS

1. The contractor shall not store/dump construction material or debris on metalled road.
2. The contractor shall get prior approval from Engineer-in-charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic/inconvenience to the pedestrian. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
3. The contractor shall take appropriate protection measure like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and/or other similar material to ensure that no construction material dust fly outside the plot area.
4. The contractor shall ensure that all the truck or vehicle of any kind which are used for construction purpose/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precaution that each vehicle is properly cleaned and dust free to ensure to exit for their destination and also it is to be ensured that no dust, sand or any other particles are released in air to pollute.
5. The Contractor shall provide mask to every worker on the construction site and hand gloves specially who are involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles and injury respectively.
6. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building.
7. The contractor shall ensure that C&D waste is transported to the C&D waste site only and due record shall be maintained by the contractor.
8. The contractor shall compulsorily use of wet jet in grinding and stone cutting.
9. The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.
10. The contractor shall carry out on-Road-inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
11. The contractor shall ensure that all DG sets comply emission norms notified by MoEF.
12. The Contractor shall use vehicles having up to date pollution control certificate.
13. The Contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.
14. Unless otherwise specified in the schedule of quantities, the rates for respective items shall be all inclusive and apply to the following: -
    a) All lifts & all heights, floors including terrace, leads and depths.
    b) All labour, material, tools and plants and other inputs involved in the execution of the item.
    c) Any of the conditions and specifications mentioned in the tender documents.
    d) Pumping / bailing out surface water / rain water / sub soil water, if necessary for any reason.
    e) Providing sunk flooring in bath-rooms, kitchen, etc.
    f) Any legal or financial implications resulting out of disposal of earth, if any.
    g) Payment of Royalty at the prevailing rates, if any, on the earth, boulders, metal, shingle, sand and bajri etc. or any other material collected by him for the work shall be made direct to revenue authorities. The proof for deposition of royalty amount has to be submitted in the

office of Engineer-in-Charge. If the agency fails to submit such proof before every running account bill, then amount as per prevailing rate will be deducted from running account bill and will be deposited in the concerned office by the Engineer-in-charge.

h) Performance test of the entire installation(s) before the work is finally accepted.

i) Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items.

j) All incidental charges for cartage, storage and safe custody of materials brought to site.

15. The agency has to fill the gap with silicon sealant in between the plaster surface and aluminium / MS steel /uPVC windows / Door frame without any extra cost.
16. Agency has to make suitable approach for carrying the material / labour etc. required for construction without any additional cost.
17. The work is to be executed in Magnesium Pilot Plant at CSIR-NML, Nildih, Jamshedpur (Jharkhand); the necessary safety measures may be adopted for movement of vehicles and storage of materials.
18. The intense and prolonged rains are common feature in area. No extension of time shall be allowed on this ground.
19. There is scarcity of sand in the area. Also, the sand supply is hampered due to mining ban by NGT or other reasons of rain etc. The contractor should plan the procurement efficiently to continue the work without interruptions. In addition, sufficient quantity of stone chips / bricks may also be procured. No extension of time shall be entertained on this ground.
20. The space for installation of batch mix plant shall be provided based on the availability of space in the campus. Dept. is not bound to provide the same as per agency choice.

NOTE:

No extra payment will be made to the Contractor for the operation of the above activity as mentioned at Sl. No. 1 to 20.

Maintenance of Material at Site (MAS) Register –

1. All the MAS Registers including Cement and Steel Registers shall be maintained by Contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff. Authenticated copies of bills / Invoice of materials which has to be entered in the MAS register are to be submitted by the contractor to CPWD before making payments.
2. Cement Register shall be reviewed by EE at least once in a month.
3. It will be deemed that work so measured, checked and paid is of the required quality and standard, both in respect of ingredients as well as the intended functions it is supposed to perform. In other words, the work would not only meet the required specifications but also the workmanship as per sound engineering practices.
4. The CE shall also have to check and sign these reports at suitable intervals in token of his ensuring compliance of the 'Quality Assurance Plan' for the work.
5. Copies of bills / Invoice: Agency will provide authenticated copies of itemize bills of materials which has to be entered in the MAS Register viz steel, cement, bitumen, paint, water proofing or any other item suggested by the Engineer-in-Charge.

ADDITIONAL SPECIFICATION

1. The work shall be executed and measured as per metric dimensions given in the Schedule of quantities, drawings etc. (F.P.S. units wherever indicated are for guidance only).

2. The following modifications to the above specifications and some additional specifications shall however apply:

   i) All stone aggregates shall be of hard stone variety to be obtained from approved quarries or from any other quarries where the material meeting to required quality and specification is available after approval from the Engineer-in-charge.

   ii) Sand to be used for cement concrete work, mortar for masonry and plaster work shall be of standard quality. Sand shall be obtained from approved location or from any other place where the material meeting to required quality and specification is available after approval from the Engineer-in-charge.

   iii) Brick of class designation 7.5shall be obtained from any kiln where the material meeting to required quality and specification is available after approval from the Engineer-in-charge.

   iv) Fly ash bricks of required designation and strength shall be used in the work. Bricks shall be obtained from approved manufacturer only. The material should meet to required specifications.

   (v) **Check list for seeking approval of Source /Product/Agency**

   Name of Material/ Product/ Source- ……..

   Name of Work :

   Name of Contractor :

Sl. No	Particulars	Description / details	Sign. Of Contractor	Sign. Of JE/ AE/EE	Remarks
1	Name and address of the manufacturer/ supplier				
2	Whether the supplier/manufacturer included in the preferred make list ?				
3	Whether the material satisfies the test requirements specified in the BOQ item?				
4	Whether the supplier can supply the material in desired quantity/ lot size as per the site schedule?				
5	Whether the manufacturer has given the method statement for its application? (attach a copy of the method statement				

3. Wherever any reference to any Indian Standard Specification occurs in the documents relating to this contract, the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, up to the last date of submission of bid.

4. Unless otherwise specified in the schedule of quantities, the rates for all items of the work shall be considered as inclusive of pumping out or bailing out water if required for which no extra payment will be made. This will include water encountered from any source, such as rains, floods, and sub-soil water table being high due to any other cause whatsoever.

5. RCC Work & DESIGN MIX CEMENT CONCRETE

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

5.1 Coarse aggregate: As per CPWD Specifications

5.2 Fine Aggregate: As per CPWD Specifications.

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

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

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

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

5.7 Grade of Concrete : The compressive strength of various grades of concrete shall to be given as below:

	Grade designation	Compressive strength on 15 cm cubes min. 7 days (N/mm2)	Specified characteristic compressive strength at 28 days (N/mm2)	Minimum cement quantity (Kg. per cum. Mtr.)	Maximum water cement ratio
I	M 25	As per design	25	As per CPWD specification/ BIS Code	0.50
II	M 30	As per design	30		0.45
III	M 35	As per design	35		0.45
IV	M 40	As per design	40		0.40

Note-

(i) In the designation of a concrete mix letter M refers to the mix and number to the specified characteristic compressive strength of 15 cm x 15 cm x 15 cm – cube 28days compressive strength expressed in N/mm2

(ii) The minimum/maximum cement content for design mix concrete shall be maintained as per the quantity mentioned above. In case where the quantity of cement required is higher than the minimum specified above to achieve desired strength based on an approved mix design extra shall become payable to the contractor.

(iii) Design slump has to be constantly monitored and maintained during placing of concrete through slump tests carried out as per CPWD specification 2019 Vol. 1 for Mortar, Concrete and RCC works, and records maintained accordingly.

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

(i) NIT Jamshedpur
(ii) IIT Dhanbad & Patna
(iii) BIT, Sindri
(iv) Any NABL Accredited LAB approved by ADG (Patna)
(v) Govt Engineering Institutions, in case of exigency, as directed by E-in-Charge.

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

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

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

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 1.10 times of the specified minimum cement content, the contractor shall have discretion the either re-design the mix or bear the cost of extra cement.

However, if admixture is not used in approved design mix, necessary recovery shall be affected as per agreement item.

5.11 The contractor shall be free to use Ready Mix Concrete (RMC)/ Batch mix concrete. The contractor shall ensure that transit mixtures shall transport the concrete to site. All the precautions shall be taken during the transportation and handling of concrete to achieve the desired strength, durability, etc. as envisaged in the Mix Design. Contractor has to get the approval from Engineer-In-Charge regarding source of RMC by giving the details of such plants indicating name of owner / company, its location, technical establishment, past experience and text of Memorandum of Understanding (proposed to be entered between purchaser and supplier). The Engineer-in-Charge, after satisfying himself about quality / capability of the company shall give approval in writing (subject to drawing of MOU). The MOU shall be drawn with RMC plant owner / company and submitted to Engineer-in-Charge within a week of such approval. The contractor will not be allowed to purchase RMC without completion of above formalities for use in the project. Notwithstanding the

approval granted by Engineer-in-Charge in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, production, transportation and placement etc. The Engineer-in-Charge will reserve the right to deploy his supervisor at plant site to inspect at any such stage and reject the material / concrete etc if he is not satisfied about quality of material / product.

6. Trial Batches

The designed mix proportion shall be checked for target mean compressive strength by means of trial batches.

The quantities of materials for each trial mix shall be sufficient for at least six specimens (cubes) and the concrete required for carrying out work ability tests.

The work ability of Trial Mix No. 1 shall be measured and mix shall be carefully observed for freedom from segregation, bleeding and its finishing characteristics. The water content, if required, shall be adjusted corresponding to the required changes in the work ability.

With the modified water content, the mix pro-portions shall be recalculated by keeping with water cement ratio unchanged. The mix proportions, as modified, shall form the Trial Mix No.2 and tested for the specified strength and work ability.

In addition, Trial Mix No. 3 and 4 shall be designed by keeping water contents same as that determined for trial mix 2 but varying the water cement ratio $\pm$ 10 percent of the specified value and tested for their design characteristics.

All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor including redesigning of the concrete mix wherever required and directed by Engineer-in-Charge.

7. APPROVAL OF DESIGN MIX:

The mix design for a specified grade of concrete shall be done for a target mean compressive strength Tck=Fck+1.65 S. Where Fck = Characteristic compressive strength of 28 days, S = Standard deviation which depends on degree of quality control The degree of quality control for this work is "good" for which the standard deviation (s)obtained for different grades of concrete shall be as below:

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

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

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

7 (b) The batching plant shall conform to IS:4925. It shall have the facilities of presetting the quantity to be weighed with automatic cutoff when the same is achieved. Concreting at places may have to be resorted to through concrete pump for which nothing extra shall be paid.

7 (c) All other operations in concreting work like Mixing, Slump, Laying Placing of concrete, compaction curing etc. not mentioned in this particular specification for Design Mix of concrete shall be as per CPWD specification.

7(d) WORK STRENGTH TEST

TEST SPECIMEN

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

7 (e) TEST RESULTS OF SAMPLE

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

Lot size

The minimum frequency of sampling of concrete of each grade shall be according to the following:-

Quantity of concrete in the work cubic metre per day	Number of samples.
1-5	1
6-15	2
16-30	3
31-50	4
51 & above	4 + one additional sample for additional 50 cubic metre or part thereof.

Note: At least one sample shall be taken from each shift.

8. FREQUENCY OF TEST:

The minimum frequency of sampling of concrete of each grade shall be one sample for every 50 cum or part thereof. At least one sample shall be taken from each shift. 90% of the total tests shall be done at the laboratory established at site by the contractor and remaining 10%in any laboratory mentioned in Para 3.9 above.

9. STANDARD OF ACCEPTANCE:

Acceptance criteria of design mix shall be in accordance with Para 5.8.3 of CPWD Specification 2019 Volume I.

10. For cast-in-situ (if required), the contractor has to arrange at site centering and shuttering as given in Proforma of Schedule before one month from stipulated date of start of work. Only M.S. 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 as per site requirement may be used on specific request from contractor as approved by the Engineer-in-Charge. No extra payment shall be made on any of these grounds

11. 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 R.C.C. shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the Contractor.

12. As per general engineering practice, level of floors in toilet / bath, balconies, corridors shall be kept 12mm to 20mm lower than corridor/ adjacent rooms/ general floors and shuttering should be adjusted accordingly and slabs should be laid with slope towards the drainage point. Nothing extra is payable on this account.

13. FORM WORK

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

13.2 Only M.S. 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, shutter-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. Steel shuttering as approved by the Engineer-in-Charge shall be used by the contractor. Minimum size of shuttering plates shall be 600mm x 900mmexcept for the case when closing pieces 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.

13.3 For the execution of centering and shuttering, the contractor shall use propriety **"**Reebole" 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.

13.4 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.

13.5 Nothing extra shall be paid for the centering and shuttering, circular in shape whenever the form work is having a mean radius exceeding 6m in plan.

13.6 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 R.C.C. shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the Contractor.

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

13.8 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.

14. STAINLESS STEEL CRAMPS

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.

15. FLOORING

The rate of items of flooring is inclusive of Providing Sunken Flooring in Bathrooms, Kitchen, W.C., etc. and nothing extra on this account is admissible.

16. WOOD WORK

The samples of species of timber/PVC to be used shall be deposited by the contractor with the Executive Engineer before commencement of the work. The contractor shall produce cash vouchers and certificates from standard kiln seasoning plant operator about the timber section to be used on the work having been kiln seasoned by them, failing which it would not be so accepted as kiln seasoned.

16.1 Factory made shutters, as specified shall be obtained from factories to be approved by the Engineer-in-charge and shall conform to IS: 2202 (Part-I) 1991. The contractor shall inform well in advance to the Engineer-in-charge the names and address of the factory where from the contractor intends to get the shutters manufactured. The contractor will place order for manufacture of shutters only after written approval of the Engineer-in-charge in this regard is given. The contractor is bound to abide by the decision of the Engineer-in-charge and recommend a name of another factory from the approved list in case the factory already proposed by the contractor is not found competent to manufacture quality shutters. Shutters will, however, be accepted only if this meets the specified tests. The contractor will also arrange stage-wise inspection of the shutters at factory of the Engineer-in-charge or his authorized representative. Contractor will have no claim if the shutters brought at site are rejected by Engineer-in-charge in part or full lot due to bad workmanship/quality. Such shutters will not be measured and paid and the contractor shall remove the same from the site of work within 7 days after the written instructions in this regard are issued by Engineer-in-charge or his authorized representative.

17. STEEL WORK

All welded steel work shall be tested for quality of weld as laid down in IS: 822-1970 before actual erection.

18. INTERNAL WATER SUPPLY AND SANITARY INSTALLATIONS

Centrifugally cast (spun) iron S & S pipes and G.I./SS pipes wherever necessary shall be fixed to R.C.C. columns, beams etc. with rawl plugs and nothing extra shall be paid for this.

The contractor shall be responsible of the protection of the sanitary and water supply fittings and other fittings and fixtures against pilferage and breakage during the period of installation and thereafter until the building is handed over.

19. VARIATION IN CONSUMPTION OF MATERIALS

The variation in consumption of material shall be governed as per CPWD specifications and clauses of the contract to the extent applicable.

20 CONDITIONS

The contractor will have to work according to the programme work, decided by the Engineer-in-Charge. The contractor shall also construct a sample unit complete in all respects within time specified by the Engineer-in-Charge and this sample unit shall be got approved from the Engineer-in-Charge before mass construction is taken up. No extra claim whatsoever beyond the payments due at agreement rates will be entertained from the contractor on this account. The contractor shall take instructions from the Engineer-in-Charge for stacking of materials in any place.

No excavated earth or building materials shall be stacked on areas where other buildings, roads, services of compound wall are to be constructed.

If as per Municipal rules the huts for labour are not to be erected at the site of work by the contractors, the contractors are required to provide such accommodation as is acceptable to local bodies and nothing extra shall be paid on this account.
Grey cement bags shall be stacked/stored in separate godown to be constructed by contractor at his own cost as per (which is only indicative and actual size will depend on the site requirements) at page 23 of CPWD specification 2019 Vol. I with weather leak proof roofs and walls. Each godown shall be provided with single door with two locks. The keys of one lock shall remain with CPWD Engineer-in-Charge of work and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is removed from the godown according to the daily requirement with the knowledge of both the parties and proper account maintained in standard proforma.

The contractor is responsible for the safe custody of the materials issued to him even if the materials are under double lock system.

The contractor shall construct suitable godowns, yard at the site of work for storing all other materials so as to be safe against damage by sun, rain, damages, fire, theft etc. at his own cost and also employ necessary watch and ward establishment for the purpose at his cost.

The standard sectional weights referred to as standard tables in Para 5.3.4 in specifications for works,2019 Vol. I& II vide page 135 of Table-5.4 to be considered for conversion of length of various size of M.S. bars/cold twisted bars and Thermo Mechanically Treated Bars into weight are as under:[Note: These are as per clause 6.2 of IS:1786].

TABLE

Nominal Size	Weight KG/M	Size (Diameter MM)	Weight KG/M
6	0.222	25	3.85
8	0.395	28	4.83
10	0.617	32	6.31
12	0.888	36	7.99
16	1.58	40	9.86
20	2.47		

All materials obtained from contractor shall be got checked by the Junior Engineer-in-Charge of the works on receipt of the same at site before use.

Royalty at the prevalent rates shall have to be paid by the contractor on all the boulders, metals, shingle sand and bajri etc. collected by him for the execution of the work, direct to the Revenue authority or authorized agent of the State Government concerned or Central Government. In event of non submission of royalty challan with bills the necessary deduction shall be made as per guideline issued from State Government.

For all kind of R.C.C. work PPC (Portland Pazzolana Cement) shall be allowed to be used.

21.0 TESTING OF MATERIAL

Grey cement & Thermo-mechanically Treated Bar shall be arranged by the Contractor.

The Contractor shall produce all the materials in advance so that there is sufficient time for testing and approving of the material and clearance of the same before use in work.

22. INTEGRAL WATER PROOFING TREATMENT

The contractor must associate himself with the specialized firm to be approved by the Engineer-in-Charge in writing, for integral cement based water proofing treatment for sunken floors and on roofs. A five (05) years Guarantee Bond in prescribed Performa as specified in this document must be given by the specialized firm on stamp paper which shall be countersigned by the contractor, in token of his overall responsibility**. In addition, 10% (ten percent) of the cost of these items would be retained as Guarantee Bond to watch the performance of the work done**. If any defect is noticed during the Guarantee period for five (05) years to be reckoned from the date after the maintenance period prescribed in the contract expires it should be rectified by the contractor within seven days and if not attended to, the same will be got done by another agency at the risk and cost of the contractor. However, this security deposit can be released in full, if bank guarantee of equivalent amount for five (05) years is produced and deposited with the department.

23. Treatment for Roof Surface

The brickbats shall be from well-burnt bricks. The proprietary water proofing compound shall conform to IS: 1856-1975. Before execution of work, water proofing compound has to be brought to site from which random sample would be got tested and a certificate of it's conforming to IS Code should be produced. The proprietary waterproofing compound shall be added at the rate recommended by the specialized firm but not exceeding 8% (percent) by weight of cement.

The finished surface after waterproofing treatment shall have minimum slope of 1 in 80. At no point shall the thickness of waterproofing treatment be less than 65mm.

While treatment of roof surface is done it shall be ensured that the outlet drain pipes have been fixed and mouths at the entrance have been added and rounded off properly for easy flow of water.

The surface where the waterproofing is to be done shall be thoroughly cleaned with wire brushes. All loose scales shall be removed and dusted off. The surface shall be treated with neat cement slurry admixed with proprietary water proofing compound

to penetrate into crevices and fill up all the pores in the surface. This cement slurry shall be applied at the junction of parapet and terrace slab by injection process.
After the slurry coat is laid, layer of well burnt brick bats shall be laid in cement mortar of mix as specified by the specialist firm but not leaner than1:5(1 cement: 5 coarse sand) admixed with proprietary water proofing compound to required gradient and joints filled to half the depth. The brickbat of various thickness shall be used to achieve the specified gradient. This layer shall be rounded at the junction with the parapet and tapered toward stop for a height of 300 mm. Curing of this layer shall be done for three days.

After curing, the surface shall be applied with a coat of cement slurry admixed with proprietary water proofing compound.

Joints of brick bat layer shall be filled fully with cement mortar of mix as specified by the specialized firm but not leaner than 1:4 (1 cement: 4 coarse sand) admixed with proprietary waterproofing compound and finally top finished with average 20mm thick layer of same mortar and finished smooth with cement slurry admixed with proprietary water proofing compound. The finished surface shall have marking of 300 x 300 mm false squares to give the appearance of tiles.

Curing of water proofing treatment shall be done for a minimum of ten days.

The Measurement shall be taken along with the finished surface of treatment including the rounded and tapered portion of junction of parapet wall.

24. **Road Work**

24.1 CEMENT CONCRETE PAVEMENT (UNDER ORDINARY CONDITIONS) Specifications of item 16.37 to be followed except that cement concrete of grade 1:2:4 or specified otherwise to be prepared and compacted.

24.2 CEMENT CONCRETE PAVEMENT UNDER CONTROLLED CONDITIONS

24.2.1 Materials

24.2.1.1 Cement

(a) Cement used on work shall be as per sub head cement concrete of CPWD specifications2019 (Vol. – I).

24.2.1.2 Water : Water used on work shall conform to SH: cement concrete of CPWD, Specification 2019- Vol. I.

24.2.1.3 Coarse Aggregate : These shall be crushed or broken from hard stones obtained from approved quarry. These shall be clean strong, durable of fairly cubical shape and free from soft, friable, thin elongated and laminated disintegrated pieces. These shall also be

free from dirt, organic deleterious and any other foreign matter and adherent coatings and shall satisfy the physical requirements laid down in para 16.37.19 under quality control.

24.2.1.4 Fine Aggregate : This shall be coarse sand conforming to CPWD Specification 2019 Vol. I.

24.2.1.5 Grading of Mixed Aggregates : The grading of all aggregates (coarse and fine aggregates) to be used in the work shall be determined in the laboratory. The coarse and fine aggregates shall be mixed in suitable proportions so that the grading of the mixed aggregates shall be in the range indicated in Table 16.32.

Table 16.32

I.S. Sieve Size (IS 460)	% age passing by weight
45 mm	100
22.4 mm	55 - 60
11.2 mm	45 - 50
5.6 mm	35 - 40
2.8 mm	30 - 35
1.4 mm	20 - 25
710 microns	15 - 20
355 microns	10 - 14
180 microns	2 - 5

Mix Design for Road work :

As per CPWD specification 2019 vol. II with upto date correction slip till completion of work.

25. **EXPANSION JOINT SYSTEM**

25.1 **FLOOR JOINT**

25.1.1 General requirement of material: The expansion joint system will be of extruded aluminum base members, self aligning /self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor/ floor to wall expansion control system for various vertical locations in load application areas that accommodate multi directional seismic movement without stress to its components. The system shall consist of metal profiles with universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self centering arrangement that freely rotates/ moves in all directions. The self-centering arrangements shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of moisture barrier membrane in the joint system to have water tight joint is mandatory requirement. The scope of work includes all labour, materials, equipments and services and perform all operations required for complete installation of expansion joint system.

25.1.2 Performance Requirement : Material and works shall conform to the latest edition of reference specifications as specified in the item and to all applicable codes and requirement of local authorities having jurisdiction.

25.1.3 Approval of expansion joint system : Sample of expansion joint system along with manufacturers latest published literature for material specified herein, material test reports, shop drawings etc. shall be submitted for obtaining approval before material are delivered at the site. The expansion joint cover assembly should be from one source (from single manufacturer)

25.1.4 Installation of expansion joint system: In all cases the manufacturer's standard written instruction or specific instructions for installation shall be followed.

25.1.5 Measurement : The length of expansion joint shall be measured, correct to a cm.

25.1.6 Rate : The rate shall be inclusive of all material and labour involved in providing & fixing of expansion joint.

25.2 WALL JOINT

25.2.1 General requirement of material : The expansion joint system related with wall joint (internal/ external) shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221-02. The material shall be such that it provides an Expansion joints systems suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office buildings & complexes with no slipping down tendency amongst the components of the joint system. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063).

25.2.2 Performance Requirement : Material and works shall conform to the latest edition of reference specifications as specified in the item and to all applicable codes and requirement of local authorities having jurisdiction.

25.2.3 Approval of expansion joint system : Sample of expansion joint system along with manufacturers latest published literature for material specified herein, material test reports, shop drawings etc. shall be submitted for obtaining approval before material are delivered at the site. The expansion joint cover assembly should be from one source (from single manufacturer)

25.2.4 Installation of expansion joint system : In all cases the manufacturer's standard written instruction or specific instructions for installation shall be followed.

25.2.5 Measurement : The length of expansion joint shall be measured, correct to a cm.

25.2.6 Rate : The rate shall be inclusive of all material and labour involved in providing & fixing of expansion joint.

26.0 FIRE RESISTANT METAL/GLAZED DOORS

26.1 GENERAL

The Fire resistant Metal/Glazed Doors shall not collapse during the rated period of fire under the specified fire conditions and shall provide safe access to the escape route.

26.2 CODES & SPECIFICATIONS

All materials, items, hardware etc. shall be subjected to approval by Engineer-In-Charge. Necessary documentation/ test certificates shall be furnished by the Contractor from the manufacturer before supply of material for approval by Engineer-in-charge. Each Door shall be provided with a small metal identification plate in suitable location indicating Fire rating, name of the Manufacturer, date of installation and details of approved test house. Each Metal/Glazing pane shall carry a permanent stamp of the manufacturer. The complete assembly of the doors i.e. frame, shutter, vision glass and hardware shall have fire rating as required and shall confirm to:

1.	EN 1634-1	Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows
2.	EN 1364-1	Fire resistance tests for non-load bearing elements – Part 1: Walls

3.	EN 410	Determination of luminous and solar characteristics of glazing.
4.	EN 12600	Glass in Buildings – Pendulum test – Impact test and classification for flat glass

26.3 TESTING AND CERTIFICATION:

The Fire resistant Metal/Glazed Doors shall be supplemented with appropriate certification by fire test lab, for applicable or higher dimension with complete description of the architectural components and hardware for Fire resistant Metal/Glazed Doors for which the approval is given. Along with the material tests, the complete system along with the framing shall be tested in accordance with the criteria of EN1634- 1 for door/window and EN1364-1 for partition. The installation of the fire rated system shall confirm to requirement of test evidence. The choice of hardware and/or glazed accessories shall be as per test evidence.

MATERIALS ARRANGED BY THE CONTRACTOR

A. CONDITIONS FOR CEMENT

1. In all contracts where departmental issue of cement and steel is not stipulated, special conditions shall be incorporated as below:

1.1 Conditions for Cement (Grey Cement).

i) The contractor shall procure 43 grade ordinary Portland cement conforming to IS 8112/Portland Pozzolana Cement (PPC) [conforming toIS:1489 (Part-I)], as required in the work, from reputed manufacturers of grey cement as mentioned in approved list of materials or from any other reputed cement Manufacturer having a production capacity not less than one million tones per annum as approved by **Chief Engineer/ Chief Project Manager for that zone**. Supply of cement shall be taken in 50 Kg. bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the Contractor shall be taken by the Engineer-in-charge and got tested in accordance with provisions of relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected and 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.

ii) Use of Portland pozzolana/ordinary portland/ portland slag cement, admixtures in recommended proportions as per IS: 9103 shall be used in RCC structures in accordance with the circular issued by the Directorate General of Works dated 16-02-2021- The use of cement shall be regulated as per the following conditions stipulated in the circular dt. 09.04.2009:-

a) IS:456-2000 Code of Practice for Plain and Reinforced Concrete (as amended upto date) shall be followed in regard to Concrete Mix Portion and its production as under:

(i) The concrete mix design shall be done as "Design Mix Concrete" as prescribed in clause-9 of IS 456 mentioned above.

(ii) Concrete shall be manufactured in accordance with clause 10 of above mentioned IS:456 covering quality assurance measures both technical and organizational, which shall also necessarily require a qualified Concrete Technologist to be available during manufacture of concrete for certification of quality of concrete.

b) Minimum M25 grade of concrete shall be used in all structural elements made with RCC both in load bearing and framed structure.

c) The mechanical properties such as modulus of elasticity, tensile strength, creep and shrinkage of flyash mixed concrete or concrete using flyash blended cements (PPCs) are not likely to be significantly different and their values are to be taken same as those used for concrete made with OPC.

d) To control higher rate of carbonation in early ages of concrete both in flyash admixed as well as PPC based concrete, water/binder ratio shall be kept as low as possible, which shall be closely monitored during concrete manufacture. If necessitated due to low water/binder ratio, required workability shall be achieved by use of chloride free chemical admixtures conforming toIS:9103. The compatibility of chemical admixtures and super plasticizers with each set OPC, fly ash and /or PPC received from different sources shall be ensured by trails.

e) In environment subjected to aggressive chloride or sulphate attack in particular, use of flyash admixed or PPC based concrete is recommended. In case, where structural concrete is exposed to excessive magnesium sulphate, flyash substitution/content shall be limited to 18% by weight. Special type of cement with low C3A content may also be alternatively used. Durability criteria like minimum binder content and maximum water/binder ratio also need to be given due consideration is such environment.

f) Wet curing period shall be enhanced to a minimum of 10 days or its equivalent. In hot & arid regions, the minimum curing period shall be 14 days or its equivalent.

g) Subject to General Guidelines detailed out as above, PPC manufactured conforming to IS:1489 (Part-I) shall be treated at par with OPC for manufacture of Design Mix Concrete for structural use in RCC.

h) Till the time, BIS makes it mandatory to print the %age of flyash on each bag of cement, the certificate from the PPC manufacturer indicating the same shall be insisted upon before allowing use of such cements in works.

i) While using PPC for structural concrete work, no further admixing of flyash shall be permitted.

III. The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer- In- Charge. The cement godown of the capacity to store a minimum of 2000 bags of cement or as decided by NIT approving authority in case less than 1OO MT cement is required for the work, shall be constructed by the contractor at site of work for which no extra payment shall be made. For small maintenance works, NIT approving authority shall decide the requirement of the storage/godown.

IV. The contractor shall be responsible for the watch and ward and safety of the cement godown. The contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge at any time.

V. 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 cost of tests of cement shall be borne by the contractor.

VI. The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in clause 42 of the contract and shall be governed by conditions laid therein. In case the cement consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made after ensuring structural soundness and stability on the basis of testing. In case of excess consumption no adjustment need to made.

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

VIII. The damaged cement shall be removed from the site immediately by the contractor on receipt of a notice in writing from the Engineer-In-Charge. If he does not'do so within 3 days of receipt of such notice, the Engineer-In-Charge shall get it removed at the cost of the contractor.

B. CONDITIONS FOR STEEL REINFORCEMENT

1. The contractor shall procure ISI marked TMT Bars of Fe 500D grade from the steel manufacturer such as SAIL, TISCON, RINL, Jindal Steel & Power Ltd. and JSW Steel ltd. Or their authorized dealer having valid BIS License for IS 1786-2008 (Amended – November 2012). If TMT bars of any dia of above mentioned make is not available in market at any time then the contractor on producing non availability certificate from the manufacturers may procured TMT bars of that dia from Steel manufacture as per the following guidelines:
2. The Special Director General of Project Region Kolkata of CPWD shall approve the steel manufactures subject to the guidelines for eligibility criteria and other technical parameters given below.

   Credentials for eligibility criteria & other technical parameters for steel manufacturer :

   The manufacturer should meet the following eligibility criteria:

   a) The Steel manufacture should have following documentary evidence:
   i. Certificate of incorporation
   ii. Memorandum of articles of Association
   iii. Credit rating of the company from CARE/CRISIL/ICRA (the grading should not be C/D grade for minimum last 3 years)
   b) The Steel manufacturer must have following licenses and certificates:
   i. ISI certificate for billets (IS 2830:2012)
   ii. ISI certificate for TMT Bars (IS 1786:2008 (Amendment -1 November 2012)
   c) The Steel manufacturer should also preferably have the following licenses:
   i. ISO 9001:2015
   ii. ISO 14001:2015
   iii. OHSAS 18001:2007
   d) The steel manufacturer should be using iron ore as the basic raw material. The entire gamut of iron and steel production is owned by the same company or its subsidiary company (ies) and the iron making capacity is sufficient matching the steel making capacity, adopting any of the refining technologies for manufacturing steel & TMT Bars as given under are eligible:
   i. BF-BOF route
   ii. COREX-BOF Route
   iii. DRI-EAF Route (Each Electric Arc Furnace should be 100 MT or more)
   e) Billets produced must be ISI marked (IS 2830:2012)
   f) The TMT bars produced must be ISI marked (IS 1786:2008)
   g) The steel manufacturer should have the following in house testing facilities (NABL Accredited):
   i. Computerized Universal Testing Machine
   ii. Spectrometer
   iii. Bend Re-bend facility as per IS : 1786:2008 (Amendment-1 November 2012)
   iv. Raw material laboratory: Arrangement for testing Carbon, Sulphur & Phosphorous etc.
   v. Other testing facilities as specified in IS : 1786:2008 & IS : 2830:2012

3. Steel can also be procured from any particular steel manufacturer who has been suo motto approved by the Special Director General of Project Region Kolkata, CPWD.
4. Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the

steel arranged by the contractor does not conform to the specifications, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time or written orders from the Engineer-in-Charge to do so.

5. The steel reinforcement bars shall be brought to the site in bulk supply of 10 tonnes or more, or as decided by the Engineer-in-Charge.
6. The steel reinforcement bars shall be stored by the contractor at site of work in such away as to prevent their 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.
7. For checking nominal mass, tensile strength, bend test & re-bend test etc. specimen of sufficient length shall be cut from each size of the bar at random at frequency not less than the specified below:

Size of bar	***For consignment below 100 tones***	***For consignment above 100 tonnes***
Under 10 mm dia bars	One sample for each 25 54ones or part thereof	One sample for each 40 54ones or part thereof
10mm to 16mm dia bars	One sample for each 35 54ones or part thereof	One sample for each 45 54ones or part thereof
Over 16mm dia bars	One sample for each 45 54ones or part thereof	One sample for each 50 54ones or part thereof

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

9. The actual issue and consumption of steel on work shall be regulated and proper accounts 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. In case the consumption is less then theoretical consumption including permissible variations leading to under designing of the structure, the work shall be summarily rejected, otherwise recovery at rate so prescribed shall be made after ensuring structural soundness and stability. In case of excess consumption no adjustment need to be made.

10. Steel brought to site and remaining unused shall not be removed from site without the written permission of Engineer- in-Charge

11. The standard sectional weights referred to shall be as given in Table 5.4 in para 5.3.4 in CPWD Specification 2019 Vol.-I and will be considered for conversion of length of various sizes of TMT Bars in to standard weight. Record of actual sectional weights shall also be kept dia. And lot wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be terms as Derived Actual Weight.

a) If the derived weight is less than the standard weight, then the Derived Actual Weight shall be accepted if it is within the following tolerances specified in IS:1786-2008, otherwise whole lot will be rejected. However, deductions shall be made for the

difference in derived actual weight and standard weight at the rate mentioned in clause 10CA for TMT-500D reinforcement bars. Tolerance on nominal mass shall be in accordance with Table 5.4A of CPWD Specification 2019.

b) If the derived actual weight is found more than the standard weight, then nothing shall be paid extra for the difference in derived actual weight and standard weight.

12. 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 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 test certificates shall be defaced by the Site staff and kept on record in the site office.

13. Guidelines for use of reinforcement bars in structures.

13.1 For reinforced cement concrete or pre-stressed concrete works, the reinforcement bars shall consist of the following grades conforming to IS 1786 : 2008 (Indian Standard specification for high strength deformed steel bars and wires for concrete reinforcement) : Fe 415, Fe 415D, Fe 415S, Fe 500D, Fe 500S and Fe 550D.

13.2 The contractor shall obtain manufacture's certificate stating the process of manufacture, chemical composition and test sheet giving result of each mechanical test applicable to the material purchased and submit it to the Engineer-in-Charge. Each test certificate shall indicate the number or identification mark to be found on the material.

13.3 The Engineer-in-Charge shall get each consignment tested for both chemical composition and physical properties (including bend and re-bend test) as specified in IS : 1786 from NABL accredited laboratory any Government laboratory.

13.4 Reinforcement bar is one of the most important building materials. Its quality directly affects the life span, resistance to earthquake and durability of the structure. In order to ensure consistent quality of rebars, the NIT approving authority may prescribe reputes bands like SAIL, RINL, Tata, JSW, JSPL in the list of preferred makes.

13.5 All testing charges of reinforcement (TMT) bars shall be borne by the contractor.

LIST OF APPROVED MAKES OF MATERIALS (Civil Work)

Specification/brands names of materials (Refer materials, whichever are applicable for the scope of work) and finishes approved by the **NIT approving authority** are listed below :-

MATERIALS	PREFERRED MAKE/ BRAND
1st Quality Acrylic Distemper / Dry Distemper	Asian Paints, Berger, ICI Dulux, Nerolac
AAC Block	ACC, Ultratech, Tisco Build, Excel
ACC Block Adhesive	Pidilite, Fosroc, Sika, Cico, Acc, Ultratech, BalEndura, Aerocon, ArdexEndura
Acrylic Polymer for Bond Coat and Polymer Modified Mortar	Anuvi Chemical, Sunanda Specialty Coating Pvt. Ltd,
Adhesive For Wood Work	Dunlop, Pidilite
All Type of Silicone	Dow Corning,Ge Silicon
Aluminium Composite Panel (ACP)	Alstrong,Alucobond,Aludecor, Virgo
Aluminium Half Elliptical Profiled Louvers	Hunter Douglas, Cantori, Dezeen
Aluminium Sections for Windows, Glazing Etc.	Hindalco,Jindal, Nalco, Indalco
AluminiumQuadroclad Honeycomb Façade System With 25mm Thick Panels	Hunter Douglas, Cantori, Dezeen
Anodised Aluminium Doors Fittings (ISI Marked Only)	Classic, Shalimar, Prestige
App	Sika, Fosroc, Dr.Fixit (Pidilite), Cico
C P Brass Fittings	Jaquar, Kohler, Roca.
C P Brass,Flush Valve	Jaquar,Zoloto, Leader, Kirlosker
CC Pavers	Ultra Tiles, Hindustan, Sati, Pre-Con
Cement Based Ready Mix Plaster	Ultratech, Wallplast, Buildwell, Acc.
Cement Based Wall Putty	Birla Wall Care, Jk White, Asian Paints, Berger-Bison
Centrifugally Cast (Spun) Iron Pipes & Fittings	NECO, RIF, SKF, KAPILANSH, BIC, HEPCO
Chequered Tiles, Paver Block &Kerb Stone	Unistone, Kajaria, Ultra Designer Tile, Nitco, Vitco, Ovilite, Hindustan, Pre-Con
CI Manhole Covers, Frames & GI Gratings	NECO, RIF, SKF, KAPILANSH, BIC, HEPCO
Damp Proof Material	Pidilite, Fosroc, Basf, Cico, Duraseal, Impermo, MYK Armament
Dash/Anchor Fasteners	Hilti,Fisher,Canon, Bosch
Di Fittings	Electrosteel (Vedanta), Jindal, Tata Ductura, Kalinga
Di Pipes	Electrosteel (Vedanta), Jindal, Tata Ductura
Di Pipes and Fittings	Electrosteel, Kesoram, Jindal, Tata Ductura.
EPDM Gasket	Amee Rubber Industries Pvt. Ltd., Bohra Rubber, Osaka
Epoxy Grout	Fosroc, MykLaticrete, Sika, Basf, Cipy
Epoxy Paint	ICI, Nerolac, Asian, Berger, Kansai Akzo Nobel.
Fire Paint	Asian Paints, Akzonobel Coatings India Ltd, Promat, Jotun
Fire Rated Doors Accessories/Fittings	Promat, Dorma, Navair, Astro Flame

MATERIALS	PREFERRED MAKE/ BRAND
Fire Rated Vision Panels	Saint Gobain, Pilkington, Schott, Ferilite, Pyroguard
Floor & Wall Tiles: Ceramic / Vitrified Tiles / Antiskid / Matt / Glazed	Kajaria, Johnson, Somany
Floor Spring/Dead Lock/Door Closers/Panic Bar	Dorma,Geze, Hafele, Hardwyn
Flush Door Shutters (Decorative/ Non-Decorative)	Greenply, Century, Kitply
Friction Stay	Earl Bihari, Giesse, Dorma, Hettich
FRP Chajja, FRP Shutters & Frame	Fibreways,BhuttFrp
Furniture	Godrej, Durian, Geeken, Haworth
Gi Fittings	Unik, Zoloto, Jindal, Ks
Gi Pipes	Tata, Jindal (Hisar), Sail
Glass Wools	Up Twiga, Owens Corning, Lloyds
Glazing For Windows, Structural Glazing, Frosted Panel, Spanderal Panels	Saint Gobain,Asahi, Pyroguard
Gully Traps(S.W.)	Perfect,Parry,Cherry
Gypsum Board	Saint Gobain,Boral
Gypsum Plaster	Gyproc, Asian Paints, Birla, Ferrous Crete, Ultra Tech.
HDPE Pipe	Reliance, Jain Pipes, Oriplast, Supreme
High-Pressure Laminate	Merino, Greenlam, Century, Decolam, Kitply, Action Tesa, Virgo
HublessCi Pipes & Fittings	NECO, RIF, SKF, KAPILANSH, BIC, HEPCO
Injection Grout	Pidilite, Fosroc, Cico, MykArment, Sika, Basf
Laminates	Merino, Greenlam, Century, Virgo
List Of RMC Producers	NUVOCO, ACC, Ultratech.
LRPC (Low Relaxation Prestressing Cables)Strands	Tata, Dp Wires, Usha Martin, Katariya Wires.
Melamine Polish	Asian Paints (Melamyne Gold), Pidilite Industries (Wudfin), Ici Dulux (Timbertone)
Metal/Wooden/Glazed/ Acoustic Fire Rated Doors	Navair, Kutty, Sukri, Bhawani, Saint Gobain, Pilkington
Metallic False Ceiling	Armstrong, Hunter Douglas, Saint Gobain,Dexune
Micro Concrete	Dr.Fixit, Basf, Fosroc
Mirror	St. Gobain, Modiguard, Asahi,Pilkington
Modular Expansion Joints	Hercules, Cs, Vexcolt, Devin, Sainfield, Z Tech, 3r Joints & Seals
Mortice Lock	Godrej,Harrison
Oil Bound Washable Distemper / Dry Distemper	Asian Paint, Berger, ICI Dulux
Ordinary Portland Cement/ Portland Pozzolana Cement	Ultra Tech, NUVOCO, ACC, Ambuja Cement, J.K. Cement
Parallel Threaded Couplers	Dextra, G-Tech, Spplicetek, Ishita
Particle Board	Action Tesa, Greenlam, Merino, Kitply
Plasticizer, Super Plasticizer, Admixtures, Other Construction Chemicals	Sika, Fosroc, Basf, Dr.Fixit (Pidilite), Cico, MYK Armament
Plywood	Kitply, Greenply, Century, Duro, Merino.

MATERIALS	PREFERRED MAKE/ BRAND
Polyester Powder Coating Shades	Nerolac/Berger/Akzonobel
Polymer Modified Cementitious Grout / Tile Adhesive	ArdexEndura, Latecrete, Fosroc, Basf, Acc,Eco Green, Cico, Pidilite
Poly-Sulphide Sealant	Fosroc, Pidilite, Sika, Basf
Premium Smooth Exterior Acrylic Emulsion Paint (5 Years Warranty Products)	Berger Paints (Product: Weathercoat Glow), Asian Paint (Product: Apex), Akzonobel (Dulux) (Product: Weathershield Protect), Kansai Nerolac Paints (Product: Excel)
Premium Smooth Interior Acrylic Emulsion Paint	Berger (Product: Rangoli Total Care), Asian Paint (Product: Apcolite Emulsion), Akzonobel (Dulux) (Product:Dulux Super Cover), Kansai Nerolac Paints (Product:Beauty Gold)
PTMT (ISI Marked Only)	Prayag, Polytuf
PTMT Bathroom Accessories (Towel Ring, Towel Rack, Soap Dish Holder, Etc)	Prayag, Polytuf, Vectus
PVC Shutters & Frame	Rajashree, Plastiwood, Accucel, Duroplast,Polyline,Polywood.
PVC Water Tank	Sintex, Supreme, Vectus
R.C.C. Pipes- (Np-2/Np-3)	Lakshmi,Sood & Sood, Jain & Co, Hindustan, Pre-Con
Rcc Pipes	Lakshmi,Sood&Sood,Pragati, K.K.Spun Pipe, The Indian Hume Pipe Co. Ltd, Patel Hume Pipes, Hindustan, Pre-Con.
Readymade Single Component Polymer Modified Repair Mortar	Master Emaco S 348 Of Basf, Anuvi Chemical, Sunanda Speciality Coting Pvt.Ltd, SkgConstn.
Re-Barring Chemical	Hilti, 3m India, Fischer
Reinforcement / Structural Steel	TISCON, SAIL, RINL, Jindal Steel & Power Ltd., JSW Steel Ltd.
Rolling Shutter with Grills	Standard,Swastik,Shubdhwar,Sona
Rust Passivator	Anuvi Chemical, Sunanda Specialty Coating Pvt. Ltd,
Rust Remover	Anuvi Chemical, Sunanda Specialty Coating Pvt. Ltd,
SBR Compound (For Repair Mortar & Water Proofing Slurry)	Master Emaco Sbr2 Of Basf, Sika Latex Power, Cico Latex SBR
Self-Drilling Screws	Builtex, Roofix, Hilti
Sfrc Covers	Kk Spun Pipes, Jain Spun Pipes, Ss Industries
Silicon Based Water Repellent/ Weather Sealant	GE Plastics, Dow Corning, Wacker, Basf, Pidilite
Spider Fittings	Dorma,Hafele, Geze
SS Floor Grating	Jayna, Chilly, Nirali, Camry
SS Hardware And Accessories for Doors, Cupboard	Dorma, Hafele, Geze,Kich, Dorset
SS Railing Sections	Jindal, Sail, Salem
Stainless Steel Sink	Nirali, Cera, Jaquar, Neelkantha,Star,Jayna,Nirali, Prayag
Steel Door / Window Frames	Agew, Senharvik, Shiv Mular, Steel Plast, Apl Apollo
Steel Nut and Bolts	Hilti, Bosch, Fischer
Steel Primer (Red Oxide Zinc Chromate Primer)	Asian Paints, Berger,ICI-Dulux
Stone Ware Pipes Grade-A (ISI Marked Only)	Sonya, Supertech, Cherry
Structural Steel/Tubes	Tata Steel, SAIL, RINL, Jindal, Jindal Steel & Power Ltd., APL Apollo

MATERIALS	PREFERRED MAKE/ BRAND
Synthetic Enamel Paint	Berger (Product: Luxol Hi Gloss), Asian Paint (Product:Apcolite), Akzonobel (Dulux) (Product: Dulux Gloss), Kansai Nerolac Paints (Product: Nerolac Synthetic Enamel Paint (Nse)
Upvc / Cpvc Pipe & Fittings	Finolex, Supreme, Prince, Astral.
UPVC DOORS & Windows (Profile Makers & Their Authorized Fabricators Only)	Fenesta, Kommerling, Aluplast, Duroplast
UPVC DOORS & Windows Hardware	Rotto, Dorset, Kinlong
Valves	Zoloto, Kirloskar, Leader
Vitreous Chinaware Sanitaryware	Jaquar, Kohler, Rak, Grohe,
Vitreous China Sanitaryware	Cera, Kohlar, Jaquar
Vitrified Paver Tiles	Kajaria, Pavit, Johnson, Nitco, Vitco.
Water Stopper	Fixopan, Caliplast
Water Supply PTMT Fittings & Accessories	Prayag
Waterproofing Compound	Doctor Fixit (Pidilite), Basf, Cico, Sika, Fosroc, MykArment
Welding Electrodes	Ador, Tata, Esab, D&H
White Cement	J.K White, Birla White, ACC
Wood Primer	Asian Paints, Berger,ICI-Dulux
WPC Doors (Frame, Shutter)	RajshriPlastiwood, Alstone, Century, Greenply

Preference to PPP-M – II Policy (Make in India):

(i) The Government has issued public procurement policy (Preference to Make in India) vide Ministry of Commerce and Industry Development of industrial policy and promotion (PPS) vide order No. P- 45021/2/2017-PP BE-II dated 28.05.2018, to —Encourage Make in Indiall and to promote manufacturing and production of Goods and services in India with a view to enhancing income and employment. CPWD has decided to implement this policy.

(ii) The agency shall submit list of makes of materials proposed to be used on the work from local suppliers (as defined in the above order dated 28.05.2018) along with minimum local content as specified below for approval of the department out of the approved makes kept in the tender.

(iii) The department will be approving only makes of the materials having a minimum local content of 50% for use on this work, out of the preferred makes list.

(iv) The minimum local content of 50% is considered for the complete item including labour component. The agency shall obtain the certificate for all items except for sundry items.

Schedule of Quantity (Civil Component)

Name of Work: Construction of Industrial shed (36M x 20M) for Magnesium pilot plant at CSIR-NML, Nildih, Jamshedpur. (SH: Additional work of Industrial shed

SN	Description	Qty	Unit	Rate	Amount
1	**STEEL WORK**				
1.1	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete	2,560.00	kg	133.70	3,42,272.00
1.2	Steel work welded in built-up sections/framed work, including cutting, hoisting, fixing, and provision and application of a priming coat of approved steel primer using structural steel, etc., as required.				
1.2.1	In stringers, treads, landings, staircases, chequered plate flooring and similar works.	3,540.00	kg	123.60	4,37,544.00
1.3	Providing & fixing fly proof wire gauze to windows, clerestory windows & doors with M.S. Flat 15x3 mm and nuts & bolts complete				
1.3.1	Stainless steel (grade 304) wire gauze of 0.5 mm dia wire and 1.4 mm aperture on both sides.	95.00	sqm	1,133.55	1,07,687.00
2	**ROOFING**				
2.1	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-Charge) of total coated thickness 0.50 mm (base metal of minimum 0.45 mm thickness with total coating thickness of 0.05mm) with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required	294.00	sqm	738.65	2,17,163.00

3	**ROAD WORK**				
3.1	Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	159.00	sqm	972.00	1,54,548.00
3.2	Construction of granular sub-base by providing close graded material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to the work site, for all leads and lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface, and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of the Engineer-in-Charge.				
3.2.1	With material conforming to Grade-I (size range 75 mm to 0.075 mm) having CBR value-30.	32.00	cum	2,784.00	89,088.00
	Total of DSR Item				13,48,302.00
	Modified Cost after using Correction factor on DSR'2023 on account of GST @ 0.973				13,11,898.00
	Cost Index @ 12%				1,57,428.00
				Total	**14,69,326.00**