

भारत सरकार
GOVERNMENT OF INDIA
केन्द्रीय लोक निर्माण विभाग
CENTRAL PUBLIC WORKS DEPARTMENT



Notice Inviting Bid

Name of work: Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works. **(SH: Floor finishing of Stretcher Ramp).**

NIT No: 04/EE&SM/DPD-3/2026-27

Office of:

**The Executive Engineer & Senior Manager (C-3),
(CE&ED, DPZ-II), CPWD,
3rd Floor, Community Centre,
GPRA Mohammadpur, R. K. Puram,
New Delhi-110066**

INDEX

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<i>Sl. No.</i>	<i>Description</i>	<i>Page No.</i>
1	Index	2
2.	Notice Inviting e-tender	3
3.	Part A	4
	Information and instructions for bidders for e-tendering	5-7
	CPWD-6	8-12
	Form of Bank Guarantee for Earnest Money Deposit/ Performance Guarantee/ Security Deposit/ Mobilisation Advance	13-14
	Performance Guarantee	15
	Declaration about Site Inspection – Annexure-II	16
	Form-F (Receipt of Deposition of Original EMD)	17
	Form-C	18
	CPWD-7	19-21
	Schedule A-F	22-26
4.	Part-B	27
	Special Condition & Specification	28-38
	Additional Conditions and Particular Specification for Civil	39-61
	List of Approved/Acceptable Make	62-67
5.	Part C	68
	Schedule of Quantity	69-70

It is certified that this bid-document contains three parts i.e. Part A, Part B & Part C containing page no. **01 to 70** is hereby approved for **Rs. 63,84,233/-** (Rupees Sixty-Three Lakh Eighty-Four Thousand Two Hundred Thirty-Three Only.)

**Assistant Engineer,
DPD-3, CPWD, New Delhi**

**Executive Engineer & Sr. Manager (C-3)
(CE&ED, DPZ-II), CPWD
New Delhi**

CENTRAL PUBLIC WORKS DEPARTMENT

Notice Inviting e -Tender

The Executive Engineer& Senior Manager (C-3) (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R. K. Puram, New Delhi-110066, (Office Telephone No. 011-26165945, 8400393938, email id: delee-iitpd3@cpwd.gov.in) on behalf of the President of India invites online percentage rate bids from the approved and eligible contractors of CPWD in appropriate class of the composite category for the following work:

NIT No.	:	04/EE&SM/DPD-3/2026-27
Name of Work	:	Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works (SH: Floor finishing of Stretcher Ramp).
Estimated cost	:	Rs. 63,84,233/-
Earnest Money	:	Rs. 1,27,685/-
Performance Guarantee	:	5% of the ECPT or contract amount whichever is higher
Security Deposit	:	2.5% of Tendered Value
Period for completion	:	75 days
Last date & time for submission of bids	:	08/10/2026 upto 15:00 Hrs. on
Date & Time of opening of Bids	:	08/10/2026 15:30 Hrs.

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

**Executive Engineer & Sr. Manager (C-3)
(CE&ED, DPZ-II), CPWD, New Delhi**

....***.... to be filled by EE & SM

PART-A

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e- TENDERING

The Executive Engineer & Senior Manager, Delhi Project Division-3, CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R. K. Puram, New Delhi-110066, (Office Telephone No. 011-26165945, 8400393938, email id: delee-iitpd3@cpwd.gov.in) on behalf of the President of India invites online percentage rate bids from the approved and eligible contractors of CPWD in appropriate class of the composite category for the following work:

NIT No.	04/EE&SM/DPD-3/2026-27
Name of work & location	Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works (SH: Floor finishing of Stretcher Ramp).
Estimated cost put to tender	Rs. 63,84,233/-
Earnest Money	Rs. 1,27,685/-
Period of Completion	75 days
Last date & time of submission of bid, EMD, e-tender, processing fee & other document as specified in the NIT	08/10/2026 upto 15:00 Hrs.
Date & Time of opening bid	08/10/2026 & 15:30 Hrs.

*** To be filled in by EE,**

1. The bidders are eligible for participation in bid provided.

(a) They should have satisfactorily completed the works as mentioned below during the last Seven Years ending previous day of last date of submission of bids.

One Similar Work costing not less than **Rs. 51.07 Lakhs**

Or

Two similar works each costing not less than **Rs. 38.31 Lakhs**

Or

Three similar works each costing not less than **Rs. 25.54 Lakhs.**

Similar work means **“Execution of Epoxy Flooring / Industrial Epoxy Floor Coating / Anti-slip Epoxy Flooring”**

The value of 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 to previous day of last date of submission of bid.

(b) Bidder has to submit self-attested copies of Completion Certificate(s) issued by the officer of the client department (Central Govt. / State Govt./ PSU/ Autonomous Body), not below the rank of Executive Engineer or equivalent in support of eligibility for similar work. Bidder will have to upload the copy of Abstract of final bill to support their claim in respect of execution

of “Similar Works”. The Bill of Quantity (BOQ)/Abstract of Bill concerned with “Similar Works” shown in Form ‘C’ will be considered for finding the value of completed works. In case of work done in Private sector, then 26AS of the Income tax department confirming the payments will be submitted by the bidder.

The Completion Certificate or Work credential certificate must clearly indicate: -

- (i) Name of Work
- (ii) Stipulated date of start and Actual date of completion.
- (iii) Gross value of work done.
- (iv) That the work has been completed satisfactorily.
- (v) Full address of the client, officer issuing certificate and location where work is executed.

2. 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.
3. Information and Instructions for bidders posted on website shall form part of bid document.
4. 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.
5. But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand draft or Banker’s Cheque or Fixed Deposit Receipts or/ and Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank towards EMD in favour of Executive Engineer 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.

Details of Beneficiary	
Beneficiary Name:	Executive Engineer, Delhi Aviation Division, CPWD, East Block, R.K. Puram, New Delhi
Name of Bank:	State Bank of India, R.K. Puram, New Delhi
Beneficiary Account No:	10933105624
IFSC Code:	SBIN0001076
MICR Code:	110002106

6. 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>.
7. 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 eM-signer on their system as per instructions available on download section of <https://etender.cpwd.gov.in>.
8. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.

9. Contractor can upload documents in the form of JPG format and PDF format.
10. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink 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.

11. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.
12. If any information furnished by the applicant is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in CPWD. The department reserves the right to verify the particulars furnished by the applicant independently.
13. **GST, Building and other Construction Workers Welfare Cess or any other tax or cess in respect of this contract shall be payable by the contractor and Government shall not entertain any claim whatsoever in this respect.**

List of Documents to be filled in by the tenderers in various forms and to be scanned and uploaded in JPG/PDF format within the period of bid submission:

1. Copy of receipt for deposition of original EMD issued by division office of any Executive Engineer (i/c NIT issuing EE/AE), CPWD.
2. Scanned copy of Earnest Money Deposit.
3. Enlistment Order of the Contractor in appropriate class of composite category in CPWD.
4. Form C as listing the claimed Completed “**Similar Works**” details along with Form 26AS of Income Tax Department in case of work done in Pvt. Sector.
5. Copy of Work Experience Certificate(s)/Completion Certificate(s) in support of Eligibility Criteria for “**Similar Works**”. as per point No.1 of information and instructions for bidders for e-tendering.
6. **GST Registration Certificate of GNCTD, Delhi**, if already obtained by the bidder. If the bidder has not obtained GST registration certificate of GNCTD, New Delhi then in such case, the bidder shall scan and upload following undertaking along with bid documents.
“If work is awarded to me, I/we shall obtain GST registration Certificate of GNCTD or required by GST authorities, 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 a/c of the work executed and/or for any action taken by CPWD or GST department in this regard.
7. Any other Document as specified in the bid documents.
8. Declaration about Site Inspection as per Annexure-II.

**Executive Engineer & Sr. Manager (C-3)
(CE&ED, DPZ-II), CPWD, New Delhi
(For and on behalf of President of India)**

CPWD-6 for e-Tendering
GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT
NOTICE INVITING TENDER

1. The Executive Engineer & Senior Manager, Delhi Project Division-3, CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R. K. Puram, New Delhi-110066, (Office Telephone No. 011-26165945, 8400393938, email id: delee-iitpd3@cpwd.gov.in) on behalf of the President of India invites online percentage rate bids from the approved and eligible contractors of CPWD in appropriate class of the composite category for the following work:

“Name of work: Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works. **(SH: Floor finishing of Stretcher Ramp)”**.

- 1.1 The work is estimated to total cost of **Rs. 63,84,233/-** this estimate, however, is given merely as a rough guide.
- 1.2 Intending bidders are eligible to submit the bid provided they have definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below: -
2. Agreement shall be drawn with the successful tenderer on prescribed Form No. CPWD 7 which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **75 days** 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. **The intended site is at newly constructed SSB Block of Dr. RML hospital. The intended bidder shall visit the site before participating in bidding process. The work shall be carried out within the time bound manner without damaging to existing work done nearby. Further, if any nearby structure is damaged, the same shall be constructed/repared within the accepted cost**
5. The Notice Inviting Bid, all the documents including additional conditions, particular specifications, and proposed Architectural 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.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. 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, Delhi Aviation Division, CPWD, East Block, R.K. Puram, New Delhi**) 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 including e- Bank Guarantee of any Commercial bank having validity for a period of 90 days for single bid works and 180 days for two bid system or more from

the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

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

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

The bid submitted shall be opened 08/10/2026 at 15:30 Hrs.

9. 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>.
10. 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 all the documents (including GST registration) as 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 tender 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.
11. The bidder whose bid is finally accepted will be required to furnish a Performance guarantee of 5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher as mentioned in schedule F. This guarantee shall be in the form of **Insurance Security Bond, Account Payee Demand Draft, Fixed Deposit Receipt, Bankers Cheque or bank guarantee (for balance amount as prescribed) from any commercial bank** 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 with tender 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 license/ registration or proof for applying for obtaining labour license, registration with EPFO, ESIC and BOCW welfare board and programme chart (time and progress within the period specified in Schedule 'F').

12. **Additional Performance Guarantee** – will be applicable as per Order No. DG/Manual-2024/20 dated 27.02.2026. In case of abnormally low bids (bid amount lesser than 80% of ECPT) the bidder shall be required to submit additional performance guarantee in addition to standard performance guarantee (PG). The amount of the additional performance guarantee shall be equivalent to the difference between 80% amount of ECPT and quoted amount (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be 0.8A-0.7A). The Additional Performance Guarantee (APG) shall be in the prescribed format of performance guarantee and has to be submitted within the time frame prescribed for submission of Performance Guarantee. The other terms and conditions of release etc. of APG shall be same as that of PG. PG shall be 5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher, or as prescribed from time to time, to be submitted in the form as prescribed in GCC. Performance Guarantee shall remain valid for a minimum period of six months beyond the date of completion of all contractual obligations as per GCC. In case of contracts where supplementary agreement is drawn, the fresh PG shall

be obtained from the contractor @ 5% of the amount of the supplementary agreement or as prescribed from time to time. The PG received against the original work shall be released as per contract conditions. A bid will be treated as abnormally low if the quoted bid amount is lesser than 80% of the estimated cost put to tender. Requirement of Additional Performance Guarantee (APG): In case of abnormally low bids as defined above, the bidder shall be required to submit Additional Performance Guarantee (APG) in addition to the Standard Performance Guarantee (PG). The amount of Additional Performance Guarantee (APG) shall be equivalent to the difference between the 80% amount of ECPT and quoted amount. (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be 0.8A-0.7A). The Additional Performance Guarantee (APG) shall be in the prescribed format of Performance Guarantee and has to be submitted within the time frame prescribed for submission of Performance Guarantee. The other terms and conditions of release etc. of APG shall be same as that of PG.

13. Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
14. 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.
15. 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.
16. 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.
17. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Housing & 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.
18. 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.
19. The bid for the works shall remain open for acceptance for a period of **Thirty (30) days** from the date of opening of bid.

Further,

- (i) If any tenderer withdraws his tender or makes any modifications in the terms and conditions of the tender which are not acceptable to the department within 7 days after last date of submission of bid, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said 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 modifications in the terms and conditions of the tender which are not acceptable to the department after expiry of 7 days after last date of submission of bid, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the said 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 bidder shall not be allowed to participate in the Re-tendering process of same work.

20. 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, special conditions, particular specification, 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(GCC for construction works 2023) amendment upto last date of submission of bid.

21. For Composite Tenders:

- 21.1.1 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.

- 21.1.2 The bid document will include following three components:

Part A: - CPWD-6, CPWD-7/8 including schedule A to F for the major component of the work, Standard General Conditions of Contract Construction Work for CPWD 2023 as amended/modified up to 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: - Financial Bid

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

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

- 21.1.5 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 in charge of minor components. One such signed set of agreement shall be handed over to EE in-charge of minor component(s). EE of major component will operate **Part A, Part-B and Part C** of the agreement.

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

- 21.1.7 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of work.

- 21.1.8 The main contractor has to associate agency(s) 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).

- 21.1.9 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. 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.

- 21.1.10 The main contractor has to enter into MoU/agreement with contractor(s) associated by him. Copy of such MoU/agreement shall be submitted to EE 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 contractor has to enter into MoU/ agreement with the new contractor associated by him.

- 21.1.11 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 component.

- 21.1.12 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.
- 21.1.13 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.
22. The intending bidders are required to update their profile in CPWD e- tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile/ uploading tender can be resolved through the concerned Executive Engineer/ Assistant Engineer (Phone no 011-26165945, 8400393938 e- mail Id delee-iitpd3@cpwd.gov.in) or ERP helpline no. 18001803286 or e-mail id: cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

Executive Engineer & Sr. Manager (C-3)
(CE&ED, DPZ-II), CPWD, New Delhi
(For and on behalf of President of India)

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

(on non-judicial stamp paper of minimum Rs. 100)

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 of Rs. (Rupeesonly) 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 irrevocable Bank Guarantee of Rs. (Rupeesonly) 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 bank..... , do hereby undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. (Rupees only).
4. We, (indicate the name of 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 to claim against us for making such payment.
5. We, (indicate the name of bank..... , further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under 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 time to time any of the powers exercisable by the Government against the said contractor and to for bear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. We (indicate the name of 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. The guarantee will not be discharged due to the change in the constitution of the Bank or the contractor.
8. We, (indicate the name of bank), undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This bank guarantee shall be valid upto 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 extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date.....

Witnesses: 1. Signature Name & Address 2. Signature Name & Address	Authorized signatory Name Designation Staff Code No. Bank Seal
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- * Date to be worked out on the basis of validity period of 180 days where only financial bids are invited and 180 days for two/ three bid system 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.

PERFORMANCE GUARANTEE

- (i) The contractor shall submit an irrevocable Performance guarantee of 5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in Schedule 'F' from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in-Charge. This guarantee shall be in the form of Cash (in case guarantee amount is less than Rs. 10,000/-) or Deposit at Call receipt of any scheduled bank/Banker's Cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay Order of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the form annexed hereto. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Government as part of the performance guarantee and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.
- (ii) The **Performance Guarantee shall be initially valid up to the stipulated date of completion plus 180 Days** beyond that. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest.
- (iii) The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the President of India is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
 - (a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.
 - (b) Failure by the contractor to pay President of India any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.
- (iv) In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the President of India.

DECLARATION ABOUT SITE INSPECTION

To,

The EE & SM (C-3)
 (CE&ED, DPZ-II) CPWD,
 3rd Floor, Community Centre,
 GPRA Mohammadpur,
 R. K. Puram, New Delhi-110066

Subject:- Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works (**SH: Floor finishing of Stretcher Ramp**).

Dear Sir,

It is hereby declared that as per CPWD-6 of NIT, "I/we the bidder inspected and examined the subject site and its surroundings and satisfy myself/ourselves before submitting my/our 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 I/ we may require and in general shall myself/ ourselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect my/our bid. I/we the bidder shall have full knowledge of the site and no extra Charges consequent upon any misunderstanding or otherwise shall be claimed at later date. I/we the bidder shall be responsible for arranging and maintaining at 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 me/us implies that I/we has read this notice and all other contract documents and has made myself/ourselves aware of the scope and specifications of the work to be done and of local conditions and other factors having a bearing on cost on the execution of the work".

Yours faithfully

(Seal & Signature)
 (Duly authorized signatory of the bidder)

Form 'F'

Receipt of Deposition of Original EMD

(Receipt no..... / date.....)

*1. Name of Work:- Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works **(SH: Floor finishing of Stretcher Ramp)**.

*2. NIT No. : 04/EE&SM/DPD-3/2026-27

*3. Estimated Cost : Rs. 63,84,233/-

*4. Amount of Earnest money deposit : Rs. 1,27,685/-

*5. Last date of submission of bid at 1500 hrs.: 08/10/2026

(* to be filled by NIT approving authority/ EE at the time of issue of NIT and uploaded along with NIT)

#1.Name of contractor.....

#2.Form of EMD.....

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

#4.Date of submission of EMD.....

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

(# to be filled by EMD receiving EE)

FORM "C"

DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED DURING LAST SEVEN YEARS ENDING PREVIOUS DAY OF LAST DATE OF SUBMISSION OF TENDERS.

Sl. No	Name of work/ project and location	Owner or sponsoring organization	Cost of work in Rupees	Date of Commencement as per Contract	Stipulated date of completion	Actual date of completion	Litigation/ arbitration Cases/ pending/ in progress with details	Name and address/ tele-phone number of officer to whom reference may be made	Whether the work was done on back- to-back basis (Yes/No)
1	2	3	4	5	6	7	8	9	10

Signature of Bidder(s)

Stamp of Bidder

Mobile No

Email ID:-

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

Percentage Rate Tender& Contract for Works

Tender for the work of: Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works **(SH: Floor finishing of Stretcher Ramp).**

- (i) To be submitted /uploaded by 15:00 hours on 08/10/2026 Executive Engineer & Senior Manager (C-3), (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R. K. Puram, New Delhi-110066 /upload at www.etender.cpwd.gov.in.
- (ii) To be opened in presence of tenderers who may be present at 15:30 hours on 08/10/2026 in The Executive Engineer & Senior Manager (C-3), (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R. K. Puram, New Delhi-110066.

Issued to:-uploaded on website www.etender.cpwd.gov.in

Signature of officer issuing the documents*

Designation Executive Engineer& Senior Manager (Civil-3), (CE&ED, DPZ-II), CPWD, New Delhi -110066

Date of issue:

*Not applicable for e-tendering

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.

We agree to keep the tender open for **Thirty (30) days** from the date of opening of the eligible 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 of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a commercial Bank, is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely, the said performance guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12 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 agency on back-to-back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for bidding 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 Deposited/ 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:
Witness:
Address:
Occupation:

Signature of Contractor
Postal Address

ACCEPTANCE

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

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

- (a)
- (b)
- (c)

For & on behalf of President of India

Signature

Designation

Dated:

SCHEDULES (A to F)
(For Civil Component)

SCHEDULE 'A'

Schedule of quantities at page No. 69-70

SCHEDULE 'B'

Schedule of materials to be issued to the contractor

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

SCHEDULE 'C'

Tools and plants to be hired to the contractor

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

SCHEDULE 'D'

Extra schedule for specific requirement/document for the work, if any.

Nil.

SCHEDULE 'E'

Reference to General Conditions of contract

: GCC for construction work 2023 for CPWD works along with correction on slips/amendments issued up to last date of submission of bid. i/c extension if any issued from the office of DG, CPWD and can be downloaded from www.cpwd.gov.in

Name of Work

: Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works **(SH: Floor finishing of Stretcher Ramp).**

Estimated cost of work:

: **Rs. 63,84,233/-**

Earnest Money:

: **Rs. 1,27,685/-** (shall be returned after receiving performance guarantee)

Performance Guarantee

: **5%** of ECPT or contract amount whichever is higher.

Security deposit

: **2.5 %** of tendered value

Additional Performance Guarantee

: **Mentioned as per page no. 10 of this NIT**

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:

- Officer inviting tender : The Executive Engineer & Senior Manager (C-3), (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R.K. Puram, New Delhi-110066 or his successor thereof.
- Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3 : See below
- Definitions:**
- 2(v) Engineer-in-Charge : The Executive Engineer & Senior Manager (C-3), (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R.K. Puram, New Delhi-110066 or his successor thereof.
- 2(viii) Accepting Authority : The Executive Engineer & Senior Manager (C-3), (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R.K. Puram, New Delhi-110066 or his successor thereof.
- 2(x) Percentage on cost of materials and Labour to cover all overheads and profits: 15%
- 2(xi) Standard Schedule of Rates: : DSR 2023 Corrected up to last date of submission of bid and market rate
- 2(xii) Department: : Central Public Works Department
- 9(ii) Standard CPWD Form 7&GCC for Construction Work 2023, modified & corrected up to last date of submission of bid.

Clause 1

- (i) Time allowed for submission of Performance Guarantee 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: : Chief Engineer cum Executive Director, Delhi Project Zone-2, CPWD, New Delhi or his successor thereof.

Clause 5

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

MILE STONE CHART

S. No.	Description of mile stone (financial terms)	Period for completion from date of start in days/months	Withheld amount for non-achievement of mile stone.
1	Submission and approval of sample for flooring	05 Days	1.00%
2	Completion of flooring for 4 Nos stretcher ramp between floors	20 Days	1.00%
3	Completion of flooring for 8 Nos stretcher ramp between floors	45 Days	1.00%
4	Completion of flooring of all stretcher ramp in complete aspect.	75 days	2.00%
	Total	75 days	5.00%

Allowed for execution of work : 75 days

Authority to decide:

- (i) Convey the decision of shifting of milestone and extension of time : The Executive Engineer & Senior Manager (C-3), (CE&ED, DPZ-II), CPWD, 3rd Floor, Community Centre, GPRA Mohammadpur, R.K. Puram, New Delhi-110066 or his successor thereof.
- (ii) Rescheduling of mile stones : Chief Engineer cum Executive Director, Delhi Project Zone-2, CPWD, New Delhi or his successor thereof.
- (iii) Shifting of Date of start in case of delay in handing over of site : Chief Engineer cum Executive Director, Delhi Project Zone-2, CPWD, New Delhi or his successor thereof.

Clause 6 : Applicable (Computerized MB/ EMB through ERP)

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: Minimum Rs. 20 Lakhs not more than one bill in 20 days.
However, Engineer-in-Charge at his discretion may release payment even at a lesser amount subjected to availability of funds from client. But Contractor cannot claim it as a matter of right and no interest payment as per clause 7 is permitted.

Clause -7A : **Applicable**

No running account bill shall be paid for the work till the applicable labour licences, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-Charge.

Clause 10A

List of testing equipment to be provided : As per requirement

by the contractor at site lab

Clause 10B : **Not Applicable**

Clause 10C : **Not Applicable**

Clause 10CA : **Not Applicable**

Clause 10CC : **Not Applicable**

Clause 11

Specifications to be followed for execution of work : CPWD specifications 2019 Vol I and Vol II corrected upto the last date of bid submission/uploading of tender. Detailed nomenclature of items& specifications for market rate items as per Engineer-in-charge

Clause 12

The total cost of work shall not exceed 1.5 times of the contract amount. Work executed beyond above limit shall neither be recorded nor paid.

Type of work : **Original Work**

Deviation Limit under clauses 12 of GCC for : 100%
all items

Clause 16

Competent Authority for deciding reduced rates : Chief Engineer cum Executive Director, Delhi Project Zone-II, CPWD, New Delhi or his successor thereof.

Clause 18

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

Clause-25:

- i. Conciliator:-Addl. Director General (Projects Delhi), CPWD, New Delhi or his successor thereof.
- ii. **Arbitrator appointing Authority: - CE & ED (DPZ-2), CPWD, New Delhi or his successor thereof.**

Clause-32: Requirement of Technical Representative(s) and Recovery Rates

Sl. No.	Minimum Qualification of Technical Representative	Number (of major +Minor component)	Minimum Experience (Years)	Designation Technical Staff	Rate at which recovery shall be made from contractor in The event of not fulfilling.	
					Figures	Words
1.	Graduate Engineer or Diploma Engineer	1	2 or 5 respectively	Project Manager cum Planning /Quality/ Site/ Billing Engineer	Rs.15,000/- per month per person.	Rs. Fifteen Thousand only per month per person

1. Assistant Engineers retired from Government services, who are holding Diploma will be treated at par with Graduate Engineers. Diploma holder with minimum 10-years relevant experience with a reputed construction company can be treated at par with Graduate Engineers for such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.
2. The Tenderer shall submit a certificate of employment of the technical representative (s) (in the form of copy of Form -16 or CPF deduction issued to the Engineers employed by him) along with every account bill/final bill and shall produce evidence of regular physical availability of such engineers on the above project at any times if so required by the Engineer-in-charge.
3. The Recovery on account of non-deployment of technical staff shall be made by the Engineer in Charge of the respective Discipline/ Component.

Clause 38 : Not Applicable

GENERAL CONDITIONS OF CONTRACT – 2023

1. Latest edition of “General Conditions of Contract for Construction Work - 2023” as amended / modified up to the last date of submission of Tenders, which is available in market as CPWD publication and also available on CPWD official website at https://cpwd.gov.in/Documents/cpwd_publication.aspx shall be deemed to be part of the Tender document and Agreement.
2. The GCC is amended from time to time through issue of OMs under series DG/CON which available on [http://www.cpwd.gov.in/Documents/Official CPWD Circulars/](http://www.cpwd.gov.in/Documents/Official_CPWD_Circulars/) official website at DG CON. These amendments/modifications issued after publication of above GCC and up to last date of submission of Tenders shall be deemed to be part of the Tender document and Agreement.
3. The GCC and its amendments as mentioned above, though not attached with this tender document, shall be deemed to be part of the Tender document and Agreement to be signed with the successful bidder.

PART-B

SPECIAL CONDITIONS & SPECIFICATION

SPECIAL CONDITIONS

1.0 GENERAL

- 1.1 The Contractors are advised to inspect and examine the site and its surroundings and satisfy themselves with the nature of site, the means of access to the site, the constraints of space for stacking material / machinery, labour etc., constraints put by local regulations (if any), weather conditions at site (rainfall, snowfall, winter/summer temperatures etc.), general ground / subsoil conditions etc. or any other circumstances which may affect or influence their tenders. No claims, whatsoever, shall be entertained at a later date for any errors found, on plea that the information supplied by the Department in the tender is insufficient or is at variance with the actual site conditions.
- 1.2 The contractor shall, if required by him, before submission of the tender, study all the tender drawings and document carefully. The Department shall not bear any responsibility for the lack of knowledge and also the consequences, thereof to the Contractor. The information and data shown in the tender 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. 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.
- 1.3 The work shall be carried out, all in accordance with true intent and meaning of the 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 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 specifications/drawings/tender document but are necessary to complete the item shall be deemed to have been included in the rates quoted by the contractor. 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 shall be payable on the account of incidental works. Decision of Engineer-in-charge regarding such incidental works shall be final and binding.
- 1.4 The work shall generally be carried out in accordance with the “CPWD Specifications 2019 Vol. I & II” with correction slips up to last date of submission of bid (including any extension in last date of bid submission), Additional/Particular Specifications, Architectural/Structural drawings and as per instructions of Engineer-in-Charge. Any additional item of work, if taken up subsequently, shall also conform to the relevant specifications mentioned above.
- 1.5 The several documents forming the tender are to be taken as mutually complementary to each other. Detailed drawings shall be followed in preference to small scale drawings and figured dimensions in preference to scale dimensions. Between two or more Clauses of this Contract, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses. In case of any ambiguity due to mutually conflicting provisions or lack of clarity in tender document, decision of Engineer-in-charge shall be final and binding.
- 1.6 The work shall be carried out in accordance with the GFCs to be issued by the Engineer-in-Charge. Before commencement of any item of work, the contractor shall correlate all the relevant architectural, structural and services drawings issued for the work and satisfy himself that the information available there from is complete and unambiguous. The discrepancy, if any, shall be brought to the notice of the Engineer-in-Charge before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and or incomplete information.
- 1.7 If there is any difference or discrepancy between the description of items as given in the particular specifications for individual items of work, special conditions and I.S. Codes, drawings etc., the following order of preference shall be observed:
- (a) Schedules of quantities with specifications

- (b) Additional Conditions
 - (c) Special conditions
 - (d) Particular specification
 - (e) Architectural drawings /Structural drawings
 - (f) CPWD Specifications including up to date correction slips.
 - (g) CPWD General Conditions of Contract for Construction (CPWD 2023) including correction slips issued up to last date of submission of bid including extensions if any.
 - (h) Indian Standards Specifications of B.I.S.
 - (i) ASTM, BS, or other foreign origin code mentioned in tender document.
 - (j) Manufacturer's specifications and as decided by the Engineer-in Charge.
 - (k) Sound Engineering practices or well-established local construction practices.
- 1.8** In the event of any variation/ discrepancy in the drawings, specifications and tender Documents etc. the decision of the Engineer-in-Charge shall be final binding and conclusive on the contractor and in the case the contractor have any doubt and the same should be got clarified immediately from the Engineer-in-charge and no claim of the contractor shall be entertained thereafter. Moreover, the agency is not allowed to take benefit out of any clerical/ grammatical mistake in the standard clauses/Specifications etc. being used in the agreement.
- 1.9** The contractor (s) shall give notices etc. to the Campus Administration, Municipality, Police and other authorities all necessary that may be required by law and obtain all requisite Licenses for temporary obstructions, enclosures etc. and pay all fee, taxes and charges which may be leviable on account of these operations in executing the contract. He shall make good any damage to the adjoining property whether public or private and shall supply and maintain light and other illumination for cautioning the public at night. The contractor shall fully comply with all legal orders and directions of the Public or local authorities or municipality and adhere by their rules and regulations. Nothing extra shall be paid/reimbursed for the same. The charges to be paid by contractor are not related to permanent constructed asset as per contract.
- 1.10** The contractor shall ensure that there is no damage to adjoining property. If any such untoward incident happens, he shall be entirely responsible for any consequences besides making good any damages to the adjoining property whether public or private. He shall supply and maintain lights either for illumination or for cautioning the public at night. Existing roads of campus cannot be allowed to be used for loaded Trucks, the existing roads, if damaged, shall be made good, improved and maintained by the contractor at his own cost at least once in 3 months when called upon to do so by Engineer-in-charge. No extra payment shall be made on this account.
- 1.11** The contractor shall bear all incidental charges for cartage, storage and safe custody, insurance, erection, testing and commissioning of materials issued by department as well as to those materials also arranged by the contractor. The contractor shall also be responsible for the watch and ward / guard of the site premises, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.
- 1.12** Wherever any reference to any Indian Standards occurs in the documents or otherwise relating to this contract, the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, up to the last date of receipt of tenders (including extended date, if any).
- 1.13** No claim whatsoever on account of any discrepancy found in the sub-surface strata conditions shall be entertained.
- 1.14** Any legal or financial implications resulting out of disposal of earth shall be sole responsibility of the contractor. Nothing extra shall be paid on this account.
- 1.15** The contractor may be allowed to erect labour huts on the plot, if permitted by client/ CPWD without disturbing the construction area. However, the contractor shall make his own arrangements to provide for additional accommodation, if required (in addition to available area at site), as per the rules of the local bodies/ client. 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.
- 1.16** No tools and plants including any special T&P etc. shall be supplied by the Department 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.

- 1.17 The Contractor shall take all precautions to abide by the environmental related restrictions imposed by any statutory body. All waste or superfluous materials shall be transported by the Contractor and disposed off at designated places only. Nothing extra shall be payable on this account.
- 1.18 No claim on account of site constraints mentioned in this document or any other site constraints such as lack of public transport, inadequate availability of skilled, semi-skilled or unskilled workers in the near vicinity, non-availability of construction machinery spare parts etc. or any other constraints not specifically stated here shall be entertained from the Contractor. Therefore, the tenderers 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. Any hindrances claimed by the contractor on this account shall not be considered while giving extension of time under clause 5 of General condition of contract amended upto date till last date or extended last date of submission of tender.
- 1.19 Other agencies may also simultaneously execute and install the works of other civil and E&M services for the work. The contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes, openings, trenches etc. as may be required for such related works and the contractor shall close with the same material at the time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.
- 1.20 The contractor(s) shall take all precautions to avoid accidents by exhibiting necessary caution boards, glow sign boards day and night. The contractor shall ensure entire necessary precaution during the entire period of work and site related activities to ensure full safety to workers and avoid any kind of accident. In case of any accident of labour's/ contractual staffs or any other human being the entire responsibility will rest on the part of the contractor both legally and financially and any compensation under such circumstances, if becomes payable, shall be entirely borne by the contractor. Being Hospital premise, it is expected to be lot of rush around the site in close vicinity of barricading. Proper lighting arrangements inside as well as along the periphery of the barricading as well as direction and caution boards in sufficient numbers shall be ensured during period of construction. Nothing extra shall be paid for this.
- 1.21 The works to be undertaken by the contractor shall inter-alia include the following:
- (a) Preparation and submission of detailed SHOP drawings (for all the specialized works and other works or part of works) and AS BUILT drawings wherever applicable.
 - (b) Obtaining of Statutory permissions (for carrying out construction) where ever applicable and required.
 - (c) Pre-commissioning tests as per relevant standard specifications, code of practice, Acts and Rules wherever required.
 - (d) Warranty obligation for the equipment's and / or fittings/fixtures supplied by the contractor.
 - (e) Contractor shall provide all the shop drawings or layout drawings for all the co-ordinated services before starting any work or placing any order of any of the services etc. These shop drawings/layout drawings shall be got approved from Engineer-in-charge before implementation and this shall be binding on the contractor. Contractor is bound to attend modifications suggested by Engineer-in-charge in shop drawings any number of times without any extra claim and promptly.
 - (f) The contractor shall submit material's submittals along with material' sample for approval of Engineer-in-Charge at least three months prior to procurement and delivery of material at site. No hindrance for extension of time shall be granted if delay in approval occurs due to failure to submit above details in time.
- 1.22 **Any cement slurry/ Nito bond added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable for extra cement considered in consumption on this account.**
- 1.23 **Site test register & MAS Registers to be maintained by contractor:**
All test registers and MAS registers issued by the engineer-in-charge shall be maintained by the contractor which will be reviewed by the officers of CPWD at regular intervals. Frequency of tests will be governed by the CPWD specifications 2019 Volume I & II with up-to-date correction slips.
- 1.24 **PREVENTION AND NUISANCE AND POLLUTION CONTROL**
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.

- 1.25.1 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. Contactor shall not be given any extension of time under clause 5 of GCC amended up to date till last date or extended last date of submission of tender on this account.

1.25 SECURITY AND TRAFFIC ARRANGEMENTS

In the event of any restrictions being imposed by the Security agency, CPWD, Traffic or any other authority having jurisdiction in the area on the working or movement of labour /material, the contractor shall strictly follow such restrictions and nothing extra shall be payable to the contractor on such accounts. The loss of time on these accounts, if any, shall have to be made up by augmenting additional resources whatever required. Any hindrance on this account shall not be considered for giving Extension of time under clause 5 of General Condition of contract amended up to date till last date or extended last date of submission of tender.

- 1.26 The site of work is in a restricted area with limited availability of space left out for accommodation, stores, field office, etc. and the 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.

If as per the rules of the local authority, 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.

- 1.27 No payment shall be made for any damage caused by rain, snowfall, flood or any other natural calamity, whatsoever during the execution of the work. The contractor shall be fully responsible for any damage to the govt. property and the work for which payment has been advanced to him under the contract and he shall make good the same at his risk and cost. The contractor shall be fully responsible for safety and security of his material, T&P/Machinery brought to the site by him.
- 1.28 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.
- 1.29 All materials obtained from contractor shall be got checked by the representative of Engineer-in-Charge on receipt of the same at site before use.
- 1.30 The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark(s), taking spot levels, construction of all safety and protection devices, barriers, preparatory works, working during monsoon, working at all depths, height, lead, lift and location etc. unless clearly specified otherwise in the description of item in schedule of quantities of work and any other incidental works required to complete this work. Total station survey instruments only shall be used for layout, fixing boundaries, and centre lines, etc. Nothing extra shall be payable on this account.
- 1.31 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. All the rules & regulations and bye-laws laid down by Collector / MCD / NDMC and any other statutory bodies shall be adhered to, by the contractor, during the execution of work. The Contractor shall also adhere to all traffic restrictions notified by the local authorities. The water charges (for municipal water connection as well as tanker water) shall be borne by the contractor. Also, if the contractor obtains water connection for the drinking purposes from the municipal authorities or any other statutory body, the consequent sewerage charges shall be borne by the contractor. The clause 31 of the General conditions of contract for CPWD

works is not applicable to the tender. All statutory taxes, GST, 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.

1.32 For works below ground level the contractor shall keep that area free from water. If dewatering or bailing out of water is required the contractor shall do it and payment shall be governed as provided in the item of schedule of quantities or as per stipulation in contract.

1.33 The Contractor shall make all necessary arrangements to protect the work already executed from rain 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.

1.34 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 notwithstanding any other provisions elsewhere in the contract agreement. Also, the Contractor shall make good, at his own cost, the damages caused, if any. Also, no claims for hindrance shall be entertained on this account.

1.35 The contractor will take reasonable precautions to prevent his workman and employees from removing and damaging any flora (tree/plant/vegetation) from the project area.

1.36 SETTING OUT

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

(ii) If at any time, any error appears due to grades, lines, levels and benchmarks during the progress of the work, the Contractor shall, at his own expense rectify such error, if so required, to the satisfaction of the Engineer -in-Charge. Nothing extra shall be payable on this account.

1.37 The rate of items of flooring is inclusive of providing sunken flooring in bathrooms, kitchen etc. and nothing extra on this account is admissible.

1.38 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 to deploy adequate equipment, machinery and labour as required for the completion of the entire work within the stipulated period specified. Also ancillary facilities shall be provided by contractor 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 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, 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 and machineries provided by the Contractor, on site of work or his workshop 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.

1.39 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.

1.40 PRESERVATION AND CONSERVATION MEASURES

(i) Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services, if any, encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. In case the same are to be removed and diverted, expenditure incurred in doing so shall be payable to the contractor. The contractor shall work out the cost, get the same approved by Engineer-in-Charge before taking up actual execution. The contractor shall not store

materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.

- (ii) All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on project location during excavation/construction shall be the property of the Government, and shall be dealt with as per provisions of the relevant legislation. The contractor will take reasonable precaution to prevent his work men or any other persons from removing and damaging any such article or thing. He will, immediately upon discovery thereof and before removal acquaint the Engineer-in-charge of such discovery and carry out the official instructions of Engineer-in-charge for dealing with the same, till then all work shall be carried out in a way so as not to disturb/damage such article or thing.

1.41 RESPONSIBILITY

- (i) He shall protect and indemnify the Department (CPWD) 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.
- (ii) 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.

1.42 SUPERVISION OF WORK

The Contractor shall depute Site Engineer & skilled workers as required for the work. He shall submit organization chart along with details of Engineers and supervisory staff. It shall be ensured that all decision-making powers shall be available to the representatives of the Contractor at New Delhi itself to avoid any likely delays on this account. The Contractor shall also furnish list of persons for specialized works to be executed for various items of work. The Contractor shall identify and deploy key persons having qualifications and experience in the similar and other major works, as per the field of their expertise. If during the course of execution of work, the Engineer-in-Charge is of the opinion that the deployed staff is not sufficient or not well experienced; the Contractor shall deploy more staff or better-experienced staff at site to complete the work with quality and in stipulated time limit. The Technical representative of the agency as mentioned in the clause 32 of the General Conditions of the Contract, shall always be available at the site during the actual execution of the work.

1.43 RATES

- i. The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, setting lay out on ground, establishment of reference bench mark(s), installing various signage, taking spot levels, survey with total station, construction of all safety and protection devices, compulsory use of helmet and safety shoes, and other appropriate safety gadgets by workers, imparting continuous training for all the workers, barriers, preparatory works, construction of clean, hygienic and well-ventilated workers housings in sufficient numbers as per drawing supplied by Engineer in charge, working during monsoon or odd season, working beyond normal hours, working at all depths, height, lead, lift, levels and location, etc. and any other unforeseen but essential incidental works required to complete this work. Nothing extra shall be payable on this account and no extension of time for completion of work shall be granted on these accounts.
- ii. The rates quoted by the tenderer, shall be firm and inclusive of all taxes and levies including GST.
- iii. 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.
- iv. 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, notwithstanding 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.
- v. All material shall only be brought at site as per program finalized with the Engineer-in- Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus

not paid for.

1.44 SAFETY PRACTICES

- i. **WARNING/ CAUTION BOARDS:** All temporary warning / caution boards / glow signage display such as "Construction Work in Progress", "Keep Away", "No Parking", Diversions & protective Barricades etc. shall be provided and displayed by the Contractor, wherever required. These glow signage and red lights shall be suitably illuminated during night also. The Contractor shall be solely responsible for damage and accident caused, if any, due to negligence on his part. Also, he shall ensure that no hindrance, as far as possible, is caused to general traffic during execution of the work. This signage shall be dismantled & taken away by the Contractor after the completion of work, only after approval of the Engineer – in – Charge. Nothing extra shall be payable on this account.
- ii. **SIGN BOARDS:** The Contractor shall provide and erect a display board of size and shape as required and paint over it, in a legible and workman like manner, the details about the salient features of the project, as required by the Engineer-in-Charge. The Contractor shall fabricate and put up a sign board in an approved location and to an approved design indicating name of the project, Client/Owner, Engineer-in-charges, Structural Consultants, Department etc. besides providing space for names of other Contractors, Sub-Contractors and specialized agencies within 15 days from issue of award letter. Nothing extra shall be payable on this account.
- iii. Necessary protective and safety equipment's shall be provided to the Site Engineer, Supervisory staff, labour and technical staff of the contractor by the Contractor at his own cost and to be used at site.
- iv. All signage shall be dismantled and taken away by the contractor after completion of the work with the approval of Engineer in charge. No payment shall be made on this account.
- v. 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.

1.45 QUALITY ASSURANCE

- i. The proposed building is a prestigious project and quality of work is of paramount importance. Contractor shall have to engage well-experienced skilled labour and deploy modern T&P and other equipment to execute the work. Many items like exposed finish form work, specialized flooring work, Polysulphide sealant and backer rod fixing in expansion joints, factory made door-window shutters, proper slope maintaining in toilet units, sanitary- water supply installation, textured finishing, grit plastering with aluminium channel insertions, water proofing treatment will specially require engagement of skilled workers having experience particularly in execution of such items.
- ii. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material / work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-charge & contractor shall be bound to replace / remove such sub-standard / defective work immediately. If any material, even though approved by Engineer-In-Charge is found defective or not conforming to specifications shall be replaced / removed by the contractor at his own risk & cost.
- iii. All materials and fittings brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-charge which shall be preserved till the completion of the work. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approved from Engineer-In-Charge. Wherever brand / quality of material are not specified in the item of work, the contractor shall submit the samples as per suggested list of brand names given in the tender document / particular specifications for approval of Engineer-In-Charge. For all other items, materials and fittings of ISI Marked shall be used with the approval of Engineer-In-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant specifications or IS codes and use the same only after getting the approval of Engineer-In-Charge.
- iv. The Contractor shall procure and provide all the materials from the manufacturers / suppliers as per the list attached with the tender documents, as per the item description and particular specifications for the work. The equivalent brand for any item shall be permitted to be used in the work, only when the specified make is not available. This is, however, subject to documentary evidence produced by the contractor for non-availability of the brand specified and also subject to independent verification by the Engineer-in-Charge. In exceptional cases, where such approval is required, the decision of Engineer-in-Charge as regards equivalent make of the material shall be final and binding on the

- Contractor. No claim, whatsoever, of any kind shall be entertained from the Contractor on this account. Nothing extra shall be payable on this account. Also, the material shall be procured only after written approval of the Engineer-in-Charge.
- v. All materials whether obtained from Govt. stores or otherwise shall be got checked by the Engineer-in-Charge or his authorized supervisory staff on receipt of the same at site before use.
 - vi. The tests, as necessary, shall be conducted in the laboratory approved by the Engineer-in-Charge. The samples shall be taken for carrying out all or any of the tests stipulated in the particular specifications and as directed by the Engineer-in-Charge or his authorized representative.
 - vii. All the registers of tests carried out at Construction Site or in outside laboratories and all material at site (MAS) registers including cement register shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-charge. All the entries in the registers will be made by the designated Engineering Staff of the contractor and same should be regularly reviewed by JE/AE/AEE/EE. Contractor shall be responsible for safe custody of all the registers.
 - viii. The Contractor shall at his own risk and cost make all arrangements and shall provide all such facilities including material and labour, the Engineer-in-Charge may require for collecting, preparing, forwarding the required number of samples for testing as per the frequency of test stipulated in the contract specifications or as considered necessary by the Engineer-in-Charge, at such time and to such places, as directed by the Engineer-in-Charge. Nothing extra shall be payable for the above.
 - ix. The Contractor or his authorized representative shall associate in collection, preparation, forwarding and testing of such samples. In case he or his authorized representative is not present or does not associate him, the result of such tests and consequences thereon shall be binding on the Contractor. The Contractor or his authorized representative shall remain in contact with the Engineer-in-Charge or his authorized representative associated for all such operations. No claim of payment or claim of any other kind, whatsoever, shall be entertained from the Contractor.
 - x. All the testing charges shall be borne by the contractor.
 - xi. All the hidden items such as water supply lines, drainage pipes, electrical conduits, sewers etc. are to be properly tested as per the design conditions before covering.
 - xii. Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to byelaws and municipal body / corporation where CPWD Specifications are not available. The contractor should engage licensed plumbers for the work and get the materials (fixtures/fittings) tested by the Municipal Body/Corporation authorities wherever required at his own cost. Nothing extra shall be paid on this account.
 - xiii. The contractor shall give performance test of the entire installation(s) as per the standing specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.
 - xiv. The Contractor shall arrange electricity at his own cost for testing of the various electrical installations as directed by Engineer-in-Charge and for the consumption by the contractor for executing the work. Also, all the water required for testing various electrical installations, fire pumps, wet riser / firefighting equipment's, fire sprinklers etc. and also testing water supply, sanitary and drainage lines, water proofing of underground sump, overhead tanks, water proofing treatment etc. shall be arranged by the contractor at his own cost. Nothing extra shall be payable on this account.
 - xv. The Contractor shall make available, on request from the Department, the copies of challan, cash memos, receipts and other certificates, if any, vouchers towards the quantity and quality of various materials procured for the work. The Contractor shall also provide information and necessary documentation on the name of the manufacturer, manufacturer's product identification, manufacturer's instructions, warning, date of manufacturing and test certificates (from manufacturers for the product for each consignment delivered at site), self life, if any etc., for the department to ensure that the material have been procured from the approved source and is of the approved quality, as directed by the Engineer-in-Charge. Wherever specified, day-to-day account of receipt of such material shall be maintained at site of work.
 - xvi. **If the Contractor does not provide adequate supporting staff or labour or both for carrying out field tests or collecting and forwarding samples to outside laboratory or for maintaining test records, Engineer in charge may carry out field tests or collect and forward sample to outside laboratory or appoint any person to maintain the registers at risk and cost of Contractor. The charges so incurred shall be entirely borne by contractor and shall be deducted from Running or final bill of contractor. Further, recovery of Rs. 2000/- for each default shall be levied to contractor.**

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

1.46 SUBMISSION AND DOCUMENTATION

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

The contractor will submit computerized measurement sheet for the work carried out by him for making payment as per Clause – 6 (computerized MB) of the CPWD General Conditions of Contract Construction Work 2023 (with upto date correction slips). For casting of RCC members and other hidden items the corrected and duly test checked measurement sheets of reinforcement or that of other hidden items shall be deposited with Engineer in charge or his authorized representative, before casting of RCC or other hidden items. The delay in submission of corrected and duly checked measurement sheet may, therefore, delay casting of RCC or execution of hidden item for which no hindrance shall be recorded.

To avoid delay, contractor should submit all samples well in advance so as to give timely orders for procurement.

1.47 SCHEDULE/ SEQUENCING OF WORK

- (i) The work should be planned in a systematic manner so as to ensure proper co-ordination of various disciplines viz. sanitary & water supply, electrical, fire fighting and any other services.
- (ii) 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, 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 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, 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 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. Delay caused due to repairing or maintenance of Equipment, tools and other machineries shall be entirely attributed to the contractor. Extension of time shall not be given on this account to the contractor.
- (iii) To avoid delay, contractor should submit samples well in advance so as to give timely orders for procurement.
- (iv) All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for (in terms of secured advance or advance payment etc.).

1.48 CLEANLINESS OF SITE

- i. The Contractor shall not stack building material / malba / muck on the land or road of the local development authority or on the land owned by the others, as the case may be. So the muck, rubbish etc. shall be removed periodically, from the site of work to the approved dumping grounds as per the local byelaws and regulations of the concerned authorities and all necessary permissions in this regard from the local bodies shall be obtained by the Contractor. Nothing extra shall be payable on this account. In case, the Contractor is found stacking the building material / malba as stated above, the Contractor shall be liable to pay the stacking charges / penalty as may be levied by the local body or

- any other authority and also to face penal action as per the rules, regulations and bye-laws of such body or authority. The Engineer –in-Charge shall be at liberty to recover, such sums due but not paid to the concerned authorities on the above counts, from any sums due to the Contractor including amount of the Security Deposit and performance guarantee in respect of this contract agreement.
- ii. The contractor shall take instructions from the Engineer-In-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed.
 - iii. 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.

1.49 INSPECTION OF WORK

- (i) In addition to the provisions of relevant clauses of the contract, the work shall also be open to inspection by Senior Officers of CPWD & the representative of the client department the contractor shall at times during the usual working hours and at all times at which reasonable notices of the intention of the Engineer-in-charge or other officers as stated above to visit the works shall have been given to the contractor, either himself be present to receive the orders and instructions or have a responsible representative duly accredited in writing, to be present for that purpose.
- (ii) Senior Officers of CPWD, Dignitaries from Central Ministry / Department, IIT Authorities shall be inspecting the on-going work at site at any time with or without prior intimation. The contractor shall, therefore, keep updated the following requirements and detailing.

1.50 DEFECT LIABILITY PERIOD (REFUND OF SECURITY DEPOSIT)

The clause 17 of the General Conditions of Contract for CPWD construction works 2023 shall be applicable.

- 1.50.1 Contractor shall collect all construction waste generated on site. Segregate these wastes based on their utility and examine means of sending such waste to manufacturing units which use them as raw material or other site which require it for specific purpose. Typical construction debris could be broken bricks, steel bars, broken tiles, spilled concrete and mortar etc.
- 1.50.2 The contractor shall provide potable water for all workers.
- 1.50.3 The contractor shall provide the minimum level of sanitation and safety facilities for the workers at site. The contractor shall ensure cleanliness of workplace with regard to the disposal of waste and effluent; provide clean drinking water and latrines and urinals as per applicable standard. Adequate toilet facilities shall be provided for the workman within easy access of their place of work. The total no. to be provided shall not be less than 1 per 30 employees in any one shift. Toilet facilities shall be provided from the start of building operations, connection to a sewer shall be made as soon as practicable. Every toilet shall be so constructed that the occupant is sheltered from view and protected from the weather and falling objects. Toilet facilities shall be maintained in a sanitary condition. A sufficient quantity of disinfectant shall be provided. Natural or artificial illumination shall be provided.
- 1.50.4 Water spray, through a simple hose for small projects, to keep dust under control. Fine mists should be used to control fine particulate. However, this should be done with care so as not to waste water. Heavy watering can also create mud, which when tracked onto paved public roadways, must be promptly removed. Also, there must be an adequate supply of clean water nearby to ensure that spray nozzles don't get plugged.
- 1.50.5 Contractor shall be required to provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals. He shall coordinate the size and functionality of the recycling areas with the anticipated collections services for glass, plastic, office paper, newspaper, cardboard, and organic wastes to maximize the effectiveness of the dedicated areas. Consider employing cardboard balers, aluminium can crushers, recycling chutes, and collection bins at individual workstations to further enhance the recycling program.
- 1.50.6 Staging (dividing a construction area into two or more areas to minimize the area of soil that will be exposed at any given time) should be done to separate undisturbed land from land disturbed by construction activity and material storage.

- 1.50.7 The contractor shall comply with the safety procedures, norms and guidelines (as applicable) as outlined in the document Part 7 Constructional practices and safety of National Building code 2005 of India, Bureau of Indian Standards. A copy of all pertinent regulations and notices concerning accidents, injury and first-aid shall be prominently exhibited at the work site. Depending upon the scope & nature of work, a person qualified in first-aid shall be available at work site to render and direct first-aid to casualties. A telephone may be provided to first-aid assistant with telephone numbers of the hospitals displayed. Complete reports of all accidents and action taken thereon shall be forwarded to the competent authorities.
- 1.50.8 The contractor shall ensure the following activities for construction workers safety, among other measures:
- Guarding all parts of dangerous machinery.
 - Precautionary signs for working on machinery
 - Maintaining hoists and lifts, lifting machines, chains, ropes, and other lifting tackles in good condition.
 - Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.
 - Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts.
 - Provide protective equipment; helmets etc. - Provide measures to prevent fires.
 - Fire extinguishers and buckets of sand to be provided in the fire-prone area and elsewhere.
 - Provide sufficient and suitable light for working during night time.
- 1.50.9 The storage of material shall be as per standard good practices as specified in Part 7, Section 2 in Storage, Stacking and Handling practices and shall be to the satisfaction of the Engineer in Charge to ensure minimum wastage and to prevent any misuse, damage, inconvenience or accident. Watch and ward of the Contractor is materials shall be his own responsibility. There should be a proper planning of the layout for stacking and storage of different materials, components and equipment's with proper access and proper manoeuvrability of the vehicles carrying the materials. While planning the layout, the requirements of various materials, components and equipment's at different stages of construction shall be considered.
- 1.50.10 The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilization of these bins for any solid waste generated during the construction. The contractor shall ensure that the site and the workers facilities are kept litter free. Separate bins should be provided for plastic, glass, metal, biological and paper waste and labelled in both Hindi and English with suitable symbols.
- 1.50.11 The Contractor shall remove from site all rubbish and debris generated by the Works and keep Works clean and tidy throughout the Contract Period. All the serviceable and non-serviceable (malba) material shall be segregated and stored separately. The malba obtained during construction shall be collected in well-formed heaps at properly selected places, keeping in a view safe condition for workmen in the area. Materials which are likely to cause dust nuisance or undue environmental pollution in any other way, shall be removed from the site at the earliest and till then they shall be suitable covered. Glass & steel should be dumped or buried separately to prevent injury. The work of removal of debris should be carried out during day. In case of poor visibility artificial light may be provided.

The contractor shall provide O & M Manuals wherever applicable.

ADDITIONAL CONDITIONS AND PARTICULAR SPECIFICATION FOR CIVIL COMPONENT

CEMENT:-

1. The contractor shall procure 43 grade ordinary Portland Cement (OPC)/PPC conforming to IS: 8112 / Portland Pozzolana Cement (PPC) conforming to IS: 1489 (Part-1) as stipulated in the items of work, from reputed manufacturers of cement as mentioned in “List showing preferred brands / Manufacturers / Makes”.
2. Supply of cement shall be made 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. The cement for such testing purpose shall be supplied by the contractor free of charge. In case test results indicate that the cement arranged by the contractor does not conform to the relevant BIS Codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week’s time of written order from the Engineer-in-Charge to do so. The cost of tests shall be borne by the contractor.
3. Cement shall be brought at site in bulk supply of approximately 10 tonnes or as decided by the Engineer-in-Charge.
4. OPC & PPC bags shall be stored in separate godowns. Separate godowns for tested cement and fresh cement (under testing) to be constructed by the contractor at his own cost as per sketches given in C.P.W.D Specifications having weather-proof roofs and walls. The size of the cement godown is indicated in the sketches for guidance. The actual size of godown shall be as per site requirements and nothing extra shall be paid for the same. Each godown shall be provided with a single door with two locks. The keys of one lock shall remain with Engineer-in Charge or his authorized representative of the work and that of other lock with the authorized agent of the contractor at the site of work so that the cement is issued from godown according to the daily requirement with the knowledge of both parties. The account of daily receipt and issue of cement shall be maintained in a register in the prescribed proforma and signed daily by the contractor or his authorized agent and Engineer-in-Charge or his authorized representative in token of its correctness. The day-to-day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the contractor or his authorized representative which shall be duly signed by the authorized representative of the Engineer-in-Charge before issue to the work on day-to-day basis.
5. Required number of cement godowns each having capacity as decided by the Engineer-in Charge shall be constructed by the contractor at site of work for which no extra payment shall be made. The contractor shall be responsible for the watch and ward and safety of the cement go-downs. The contractor shall facilitate the inspection of the cement go-downs by the Engineer-in-Charge at any time.
6. The pages of the register should be machine numbered. The cement godown and the register are required to be checked by the AE/EE in-charge of the work as mentioned below: -
 - a) At least weekly or fortnightly, respectively in case of works at the he headquarters of AE/EE and.
 - b) Whenever they visit the site of work in case of works located outside the Sub- Divisional/Divisional Head Quarters.
 - c) In the case of large concentrated projects like major bridges etc., the EE should check the cement register at least monthly.
7. The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in the contract.
8. Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer-in-Charge.
9. Damaged cement shall be removed from site immediately by the contractor on receipt of notice in writing from the Engineer-in-charge. If he does not do so within three days of receipt of such notice, the Engineer-in-charge shall get it removed at the cost of the contractor.
10. In case the contractor brings surplus quantity of cement the same shall be removed from the site after completion of work by the contractor at his own cost after approval of the Engineer-in-Charge.
11. Cement, which is not used within 90 days from its date of manufacture, shall be retested at approved laboratory. Until the results of such tests are found satisfactory, it shall not be used on the work.

1.1 REINFORCEMENT BARS:

- 1.1.1 The Contractor shall procure TMT bars (Fe 550 D or more) from primary producers such as SAIL, Tata Steel Ltd, RINL, Jindal steel & Power Ltd. and JSW Steel Ltd. or any other producer as approved by CPWD who are using iron ore as the basic raw material/input and having crude steel capacity of 2.0 Million tonnes per annum and above.
- 1.1.2 The specifications of TMT bars procured from primary producers shall meet the provisions of IS 1786 : 2008 pertaining to Fe 500D or more grade of steel as specified in the tender.
- 1.1.3 The contractor shall have to obtain and furnish factory test certificates to the Engineer - in-charge in respect of all supplies of steel brought by him to the site of work.
- 1.1.4 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 as defined, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time of written orders from the Engineer-in-Charge to do so. Else the department shall remove it and recover double the cost of removal from the contractor.
- 1.1.5 The steel reinforcement bars shall be brought to the site in bulk supply of 15tonnes or as per requirement site and as decided by the Engineer -in-charge.
- 1.1.6 The steel reinforcement bars shall be stored by the contractor at site of work in such a way 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.
- 1.1.7 For physical and chemical tests, like checking nominal mass tensile strength, re-bent etc. specimens of sufficient length shall be cut from each size of the bar at random and at frequency not less than that specified below:

Size of Bar	For Consignment below 100 tonnes	For consignments above 100 tonnes
Under 10 mm dia bars	One sample (Three specimen) for each 25 tonnes or part thereof	One sample (Three specimen) for each 40 tonnes or part thereof
10 mm to 16 mm dia bars	One sample (Three specimen) for each 35 tonnes or part thereof	One sample (Three specimen) for each 45 tonnes or part thereof
Over 16 mm dia bars	One sample (Three specimen) for each 45 tonnes or part thereof	One sample (Three specimen) for each 50 tonnes or part thereof

- 1.1.8 The contractor shall supply free of charge the steel required for testing including its transportation to testing laboratories. **The cost of tests shall be borne by the contractor.**
- 1.1.9 The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in 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 the conditions laid therein. In case, the consumption is less than theoretical consumption including permissible variations, recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment shall be made.
- 1.1.10 The steel brought to site and the steel remaining unused shall not be removed from site without the written permission of the Engineer-in-charge.
- 1.1.11 For the purpose of payment, the actual weight of steel reinforcement / structural steel sections/ plates / bolts and nuts shall be measured as below:
- (i) *Unit weight for reinforcement bars:* The actual weight per meter of the reinforcement of various diameters shall be measured for three random samples collected (for each diameter of steel reinforcement) from each lot of particular diameter of steel reinforcement brought to the site for use in the work. For this, each sample (one sample consisting of three specimens) for each diameter of steel reinforcement shall be cut to require lengths and weighed and average weight calculated and recorded. The average weight for each type of steel section and steel reinforcement of each diameter shall be taken as the actual weight per metre for that steel section and that diameter of steel reinforcement.
- (ii) In case actual unit weight is less than standard unit weights mentioned in CPWD specifications 2019 Volume 1, but within variation, in such cases payment shall be made on the basis of actual unit weight. However, if actual unit weight is more than standard unit weights mentioned in CPWD specifications 2019 Volume 1, then payment shall be made on the basis of standard unit weight in such cases. In such case nothing extra shall be paid for difference in actual weight and standard weight.

- 1.1.12 The decision of the Engineer-in-charge as regards the random samples shall be final and binding on the contractor and no claim of any kind shall be entertained in this regard.
- 1.1.13 The work shall be carried out as per the CPWD specifications.

PARTICULAR SPECIFICATIONS FOR CIVIL WORKS

1. GENERAL

- 1.1. Except for the items, for which Particular Specifications are given herein or where it is specifically mentioned otherwise in this bid document, the work shall generally be carried out in accordance with the “CPWD Specifications - 2019 (Vol. I & II) for Civil works or their latest version with up-to-date correction slips and CPWD Specification for Horticulture works with up-to-date correction slips (hereinafter to be collectively referred to as ‘CPWD Specifications’). Wherever CPWD Specifications are silent, the latest BIS Codes/Specifications, National Building Code-2016, MoRTH Specification, Manufacturers Specifications, Sound Engineering practices or well-established local construction practices as decided by the Engineer-in-charge shall be followed.
- 1.2. A reference made to any Indian Standard Specifications in these documents, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards up to last date of receipt of tenders. The Contractor shall keep at his own cost all such publications of relevant Indian Standard applicable to the work at site.
- 1.3. Unless otherwise specified, 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 subsoil water table being high due to any other cause whatsoever.

2. Earthwork

2.1. General

All types of excavation work shall be done in accordance with CPWD specifications Volume - I & II with correction slips up to the last date of submission of tender documents.

The excavation for buildings and services shall be done in soft / disintegrated/Hard rock. Excavation shall be done to the depth as shown on drawings/as required at site and as directed by Engineer-in-Charge. All cutting and filling in soft / disintegrated/Hard rock is included in the scope of work and nothing extra will be paid for variation of levels as shown in drawing and actual ground levels or anything else whatsoever.

Stone obtained from excavation in hard rock (other than by chiselling) shall become property of the contractor.

The contractor shall pay Rs. 450.00 per Cum of measured quantity of stone obtained without deduction of voids in excavation and shall remove it off the site with prior permission of Engineer-in-Charge. No lead shall be payable for the removal of stone from site. The contractor may use the stone obtained from excavation in filling under floors or road work after necessary breaking if required. In cases the excavation in hard rock is carried out by chiselling then the excavated material shall be used in filling as specified hereinafter in floors or road work. The recovery of Rs. 450.00 per cum of stack measurement (without any deduction for voids) of hard rock shall be affected from the contractor to the extent of material used in filling. Surplus excavated material shall be disposed off as directed without any extra cost to Govt. Blasting of rock is prohibited. Excavation in hard rock (if met with during excavation) shall be by chiselling or any other agreed method.

Any trenching and digging for laying sewer lines / water lines /cables etc. shall be commenced by the contractor only when all men, machineries and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time. The Excavated rock from the site shall not go outside and to be reutilized within site for making pathways, boundary wall etc as per Drawings. without any extra charge.

Extra of Lead beyond 50 m shall not be payable like placing material, Storage and filling back of Excavated soil within site. the contractor needs to visit the site and check all possibilities; any constraint shall not be entertained.

2.2. Disposal of Surplus earth

All Excavated material including excavated earth declared as surplus and not useful, shall be removed from the Site by the contractor within the scope of agreement. The removal of surplus Material shall only be undertaken by the contractor when instructions in this regard are obtained from Engineer in charge.

Dumping shall be at designated place identified by the agency. Contractor shall also obtain necessary permissions / approvals / authorization from the competent authority of local body / traffic / police as the case may be for removal of excavated earth/material. No payment/fees on this account shall be entertained by the department.

3. Concrete work

3.1. Plain Cement Concrete / Lean Concrete:

Plain Cement Concrete / Lean concrete in required thickness as per design shall be laid below the raft and all type foundation works, below kerb stone, under floors or wherever required as per CPWD Specifications Volume - I & II with correction slips up to the last date of submission of tender documents.

3.2. Reinforced Cement Concrete Work:

The work shall be done as per CPWD specifications 2019 Volume - I & II with correction slips up to the last date of submission of tender documents.

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

3.3. DESIGN MIX CONCRETE:

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

3.3.1 Coarse aggregate: As per CPWD Specifications

3.3.2 Fine Aggregate: As per CPWD Specifications.

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

3.3.4 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.

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

3.3.6 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.

3.3.7 The concrete mix design/laboratory tests with and without admixture shall be got done by contractor at his own cost and will be carried out by the contractor through approved NABL Lab/Govt. Engineering Institutions as directed by the Engineer-in-charge.

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 contractor.

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

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

3.4. Materials Specifications for RCC and PCC Works:

a. Aggregates: -

As per CPWD Specifications and to be crushed naturally occurring materials conforming to IS: 383-2016. All physical properties and grading parameters must conform to BIS code and CPWD specifications.

b. Water: -

- i. Contractor shall make his own arrangement for the entire water required for construction of this project. **Only RO treated water shall be used at concrete batching plant.** Water shall be tested in accordance with the relevant IS Code. IS:456-2000 and as per CPWD specifications.

- ii. The Contractor shall make its own arrangements for storing of water. Care shall be taken to ensure that water is not contaminated anyway.
- iii. For RMC concrete, quality of water shall be got tested at concrete producing plant at every 2 months intervals from the reputed laboratory approved by Engineer in charge, if required the water treatment plant shall be installed at RMC producing plant for which no extra cost shall be paid by department.

c. Cement: -

Cement arranged by the contractor will be conforming to IS 456: 2000 as mentioned in the additional condition for cement attached with tender documents.

d. Admixture: -

The admixture shall be as per relevant BIS code and as per CPWD specifications.

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 / PCC work.

3.5. Grade of Concrete: -

The characteristic compressive strength of various grades of concrete shall be given as below:

Sr. No	Grade	Compressive Strength on 15cm cubes min 7days (N/mm ²)	Specified characteristic compressive strength at 28days (N/mm ²)	Minimum cement content* (Kg per cum)	Maximum Water cement ratio
(i)	M-25	As per Design	25	As per CPWD specification/ BIS Code	0.45
(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		0.45
(iv)	M-45	As per Design	45		0.45

The Concrete mix will be designed for minimum workability as specified in IS-456-2000.

3.6. Workability of Concrete (Unless otherwise specified elsewhere or as decided by Engineer in charge):

Placing Conditions	Degree of Workability	Slump (mm)
(1)	(2)	(3)
Lightly reinforced sections in slabs, beams, walls, columns	Low	25-75
Heavily reinforced section in slabs, beams, walls, columns.	Medium	50-100
Pumped concrete	Medium	75-100

The recommended values of slump for various members to confirm IS 456. In the designation of concrete mix letter M refers to the mix and the number to the specified characteristic compressive strength of 15 cm - Cube at 28 days expressed in N/mm².

3.7. Approval of Design Mix:

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

Where F_{ck} = Characteristic Compressive Strength at 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 per IS relevant IS Standards/Codes.

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

3.7.1 WORK STRENGTH TEST

TEST SPECIMEN

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

TEST RESULTS OF SAMPLE

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

Lot size

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

Quantity of concrete in the work cubic meter per day	Number of samples.
1-10	1
11-30	2
31-60	3
61-100	4
101 & above	4 + one additional sample for additional 50 cubic meter or part thereof

Note: At least one sample shall be taken from each shift. As per CPWD Specification with up-to-date correction slip

3.7.2 Charges for Design Mix:

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

3.8. Production of Concrete:

The concrete shall be BMC/RMC produced in a central batching and mixing plant with, computerized printing for contents and admixture dosage. The batching plant shall be fully automatic having capacity not less than 60 cum/ hrs. Automatic batcher shall be charged by devices which, when actuated by a Single starter switch will automatically start the weighing operation of each material and stop automatically, when the designated weight of each material has been reached. The batching plant shall have automatic arrangement for dispensing the admixture and shall also be capable of discharging water in more than one stage. A print out from the batching plant for every lot shall be submitted.

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

Measurement of Cement	± 1% of the quantity of cement in each batch
Measurement of Water	± 2% of the quantity of water in each batch
Measurement of Aggregate	± 2% of the quantity of aggregate in each batch
Measurement of Admixture	± 2% of the quantity of admixture in each batch

3.8.1.Mixing Concrete:

The mixer in the batching plant shall be so arranged that mixing action in the mixers can be observed from the operator's station. The mixer shall be equipped with a mechanically or electrically operated timing, signalling and metering device which will indicate and assure completion of the required mixing period. The mixer shall have all other components as specified in IS: 4925.

3.8.2.Transportation, Placing and Compaction of Concrete:

Mixed concrete from the batching plant shall be transported to the point of placement by transit mixers or through concrete pumps or steel closed bottom buckets capable of carrying 6 cum concrete. In case the concrete is proposed to be transported by transit mixer, the mixer speed shall not be less than 4 rev/min. of the drum nor greater than a speed resulting in a peripheral velocity of the drum as 70 m / minute at its largest diameter. The agitating speed of the agitator shall be not less than 2 rev / min. nor more than 6 rev / min. of the drum. The number of revolutions of the mixing drum or blades at mixing speed shall be between 70 to 100 revolutions for a uniform mix, after all ingredients, have been charged into the drum. Unless tempering water is added, all rotation after 100 revolutions shall be at agitating speed of 2 to 6 rev / min. and the number of such rotations shall not exceed 250. The general construction of transit mixer and other requirements shall conform to IS: 5892. Time & transportation of Indian Institute of Mass Communication from plant to site (upto placing / laid in position) shall be less than 2 hours.

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

Materials for pumped concrete shall be batched consistently and uniformly. Maximum size of aggregate shall not exceed one-third of the internal diameter of the pipe. Grading of aggregate shall be continuous and shall have sufficient ultra fine materials (materials finer than 0.25mm). Proportion of fine aggregates passing through 0.25mm shall be between 15 & 30% and that passing through 0.125 mm sieve shall not be less than 5% of the total volume of aggregate. When pumping long distances and through hot weather, set-retarding admixtures may be used. Admixtures to improve workability can be added. Suitability of concrete shall be through pumping shall be verified by trial mixes and by performing pumping tests.

3.8.3. Preparation of Mixes as per approved design mix and conducting confirmatory test at field lab:

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

For each mix, a set of six cubes shall be made from each of the three consecutive batches. Three cubes from each set of six shall be tested at age of 7 days and remaining three cubes at age of 28 days. The cubes shall be made, cured, transported and tested strictly in accordance with specifications. The average strength of nine cubes at age of 28 days shall exceed the specified target mean strength for which design mix has been approved, the evaluation of test results will be done as per IS : 456-2000.

3.9. Work Strength Test:

TEST SPECIMEN

Work strength test shall be conducted in accordance with IS: 516 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. Additional samples shall be prepared, if required, as per direction of Engineer in charge for testing samples cured by accelerated method as described in IS: 9103.

TEST RESULTS OF SAMPLE

The test results of the sample shall be the average of the strength of three specimens. The individual variation shall not be more than $\pm 15\%$ of the average. If more, the test results of the sample are invalid. 90% of the total tests shall be done at the laboratory established at site by the contractor and remaining 10% in the laboratory of Government Engineering colleges, or in any other approved laboratory as directed by the Engineer-in-charge.

STANDARD FOR ACCEPTANCE

Standard of acceptance shall be same as specified in clause 16 of IS 456-2000.

In order to keep the floor finish as per direction of Engineer-in-charge and as per Architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of RCC shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the contractor.

Ultrasonic Pulse Velocity Method of Test for RCC

The underlying principle of assessing the quality of concrete is that comparatively higher velocities are obtained when the quality of concrete in terms of density, homogeneity and uniformity is good. The consistency of the concrete as regards its general quality gets established. In case of poorer quality lower velocities are obtained. If there are cracks, voids or flaws inside the concrete which come in the way of transmission of pulse, lower velocities are obtained.

The quality of concrete in terms of uniformity, incidence or absence of internal flaws, cracks and segregation etc. indicative of the level of workmanship employed, can thus be assessed using the guidance given in table below, which have been evolved for characterizing the quality concrete in structure in term of the ultrasonic pulse velocity.

3.9.1. Velocity criterion for Concrete Quality Grading:

Sr. No.	Pulse velocity by Cross Probing (km/sec)	Concrete Quality Grading
1	Above 4.5	Excellent
2	4.5 to 3.5	Good
3	3.5 to 3.0	Medium
4	Below 3.0	Doubtful

Note: In Case of “doubtful” quality it may be necessary to carry further tests.

Pulse velocity method of test of concrete is to be conducted for CPWD works as a routine test. The acceptance criteria as per the above table will be applicable which is as per IS 13311 (part-1): 1992. From

the above “Good” and “Excellent” grading are acceptable and below these grading the concrete will not be acceptable.

Contractor has to perform non-destructive tests as specified by IS 13311.

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

The test results are to be examined in view of the above acceptance criteria “Good” and “Excellent” and wherever concrete is found with less than required quality as per acceptance criteria, repairs to concrete will be made. Honeycombed areas and loose pockets will be repaired by grouting using Portland Cement Mortar/Polymer Modified Cement Mortar /Epoxy Mortar, etc. after chipping loose concrete inappropriate manner. In areas where concrete is found below acceptance criteria and defects are not apparently visible on surface ,injecting approved grout in appropriate proportion using epoxy grout / acrylic Polymer modified cements slurry made with shrinkage compensating cement / plain cement slurry etc. will be resorted to for repairs.(refer relevant chapters from CPWD Hand Book on Repairs and Rehabilitation of RCC Buildings).Repair to concrete will be done till satisfactory results are obtained as per the acceptance criteria by retesting of the repaired area. If satisfactory results are not obtained dismantling and relaying of concrete will be done.

TOLERANCES

As per CPWD specifications

In case of rejection of concrete on account of unacceptable compressive strength, governed by para ‘Standard of Acceptance’ as above, the work for which samples have failed shall be redone at the cost of contractors. However, the Engineer in charge may order for additional tests (like cutting cores, ultrasonic pulse velocity test, load test on structure or part of structure etc.) to be carried out at the cost of contractor to ascertain if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests.

The contractor shall take remedial measures necessary to retain the structure as approved by the Engineer in charge.

As per general engineering practice, level of floors in toilet / bath, balconies, shall be kept 12 to 20mm or as required, lower than general floors shuttering should be adjusted accordingly. The landing level of mummy / staircase cabin shall be kept one riser level higher than adjoining slab level so as to accommodate water proofing treatment over terrace slab. In case of kitchen slab the portion of floor trap below kitchen platform is kept at lower level as per drawings.

For the execution of cantering and shuttering, the contractor shall use propriety “Ree bole” chemical mould release agent of FOSROC or equivalent as shuttering oil as approved by Engineer-in-charge.

Strength of concrete before and after casting, shall be determined all as per Indian standards and as per reference given below:

1. IS: 456-2000, Plain and reinforced concrete – Code of Practice (Fourth Revision) BIS, New Delhi.
2. IS: 516-1959, Method of test for strength of concrete, BIS, New Delhi.
3. IS: 1199-1959, Method of sampling and analysis of concrete.
4. ASTM: C42/C42 M-04, Standard test method for obtaining and testing drilled cores and sawed beams of concrete.
5. BS 1881: Part 120:1983, Method for determination of the compressive strength of concrete cores.
6. Concrete core testing for strength, Tech. Report 11, Concrete Society, London, 1987.
7. H. Bungay, S.G. Millard, M.G. Grantham, Testing of concrete in structures Fourth Edition.
8. V. Nayak, A.K. Jain, Advanced Concrete Technology.
9. IS: 13311-1992 Part-I and II, Method of Non-destructive testing of concrete, Part 1: Ultrasonic pulse velocity [CED 2: Cement and Concrete].

4.0 REINFORCEMENT STEEL: -

- a. For reinforced cement concrete, the TMT bars of various grades shall consist of following grades conforming to IS 1786:2008 (Indian standard Specifications for high strength deformed steel bars and wires for concrete reinforcement): Fe-500D or more. The contractor shall obtain manufacturer's certificate stating the process of manufacture, chemical composition and test sheet having 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 of the cast to which it applies, corresponding to the number or identification mark to be found on the material.
- b. The Engineer-in-charge shall get each consignment tested for both chemical composition physical properties (including bend and re-bend test) as specified in IS 1786 form NABL accredited laboratory or any Government laboratory.
- c. Reinforcement bar is the 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 consistence quality of re-bars, steel may be procured from reputed brands like SAIL, TATA steel Ltd, RINL, JSPL and JSW.
- d. The procured steel should have following qualities: -
 - i. Excellent ductility, bend ability and elongation of finished product due to possible refining technology.
 - ii. Consumption of steel should be accurate as per design.
 - iii. Steel should have no brittleness problem in finished product.
 - iv. Steel should carry the quality of corrosion and earthquake resistance.
 - v. Quality steel with achievement of proper level of Sulphur and Phosphorus as per IS:1786-200
- e. 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 own cost within a week time of written orders from the Engineer-in-Charge to do so.
- f. The steel reinforcement bars shall be brought at site in bulk supply of 10 tonnes or more or as decided by the Engineer-in-charge.
- g. The steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent distortion and corrosion and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.
- h. 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 that specified below:

Size of bar	For consignment below 100tonnes	For consignment above 100tonnes
Under10 mm Dia	One sample for each 25 tonnes or part there of	One sample for each 25 tonnes or part there of
10 mm to 16mm dia Bars	One sample for each 35 tonnes or part there of each 35 tonnes	One sample for each 45tonnes or part there of
Over bars 16mm	One sample for or part there of each 45 tonnes	One sample for each 50tonnes or part there of

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

5.0 ADMIXTURES/ PLASTICIZER:

Admixtures/ Plasticizer in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability shall be used. Also, Superplasticizer shall be added to reduce drying shrinkage tested as per ASTM C157 and ASTM C1698 & to reduce chloride penetration in concrete tested as per NT BUILD 492 & ASTM C 1202. Reduction of shrinkage and chloride penetration will enhance the durability of concrete.

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

6.0 Formwork

6.1 Scope:

All the specifications for shuttering shall be as per CPWD Specifications. Centring and shuttering for all concrete and reinforced concrete and structural steel work wherever required shall be in steel and or BWP grade plywood treated with preservatives / Film Faced mainly used for concrete purpose to produce a smooth straight level and sharp profiles shall be used for the works for uniform finish on all exposed surfaces. Panels

to be in largest practicable sizes to reduce the number of joints, Form material shall have strength adequate to withstand pressure of newly placed concrete. However, all props, bracings, scaffolding etc., shall be in steel. The entire responsibility of planning, design, erection and safety of formwork shall lie with the Contractor. The cost of form work is included in tendered cost and nothing extra shall be paid for extra heights and use of stronger sections for scaffolding materials etc as per the design of formwork. Contractor shall arrange and erect formwork and de-erect the same with proper planning and no claim for extended period of scaffolding shall be entertained under any case.

6.2 Formwork design shall consider the following:

- a) Dimensional tolerance
- b) Demountable without shock, disturbance or damage to concrete
- c) All construction joints in beams and slabs shall be provided as shown in drawings.
- d) Ties shall be provided where required
- e) Cambers shall be provided where shown.
- f) Props / supports of extra ceiling height shall be specially designed.

6.3 Formwork: - Form work shall be placed and removed as per time line provided in CPWD-specifications.

6.4 Mould Oil: Before laying the reinforcement, all faces of shuttering and moulds in contact with wet concrete shall be treated with a coat of oil to prevent adherence to concrete. Release agent should be applied so as to provide thin uniform to the forms without coating the reinforcement. The mould oil shall be of good quality and make as approved by the Engineer-in-Charge. 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 as per preferred make list shall be applied on the surface of the shuttering plates in the requisite quantity before assembly of steel reinforcement. Nothing extra shall be paid on this account.

7.0 Masonry Works

7.1 Masonry work shall generally be with Fly Ash bricks confirming to IS code: 3495 & IS 10077, class designation shall be not less than 10-12 N/mm² compressive strength, shall be provided for all types of Masonry Walls except in wet areas, below the plinth beams and specified otherwise. The work shall be done in accordance with CPWD specifications Volume - I & II with correction slips up to the last date of submission of tender documents.

7.2 **Common Burnt Clay (FPS) Bricks** of class designation 7.5 shall conform to IS:1077 (hand moulded or machine moulded) shall with cement mortar 1:4 (1 cement:4 coarse sand) in wet areas (Toilet walls), below plinth beams and any other location of external development as per architectural drawings as per CPWD specification.

7.3 Thickness of Walls to be as per Architectural Drawings.

7.4 M.S. Strip/ Bar provided at every third course of half brick masonry shall be in single piece. If required, welding joint can be used without overlaps. Nothing extra shall be paid for welding and overlaps.

7.5 The rate shall also include for leaving chases / notches for dowels / cramps for all kinds of cladding to come over brick work.

7.6 Brick work provided around shaft or lift walls or around slab cutouts shall be measured in the brick for corresponding floor level. Nothing extra shall be paid on this account.

8.0 Door, Window, Ventilator, WPC Jali, Structural Glazing and Fire Doors:

Contractor needs to refer architectural drawing, interior drawings, door detail sheets, hardware schedule and material palette for finish of door, window, ventilator, jali and glazing attached with tender document for the all types of doors, window, ventilator, jali and glazing identifications and locations.

8.1 Flush Door Frames and Shutter:

Contractor needs to refer architectural drawing, interior drawings, and door detail sheets for door frames for all types of doors. Door frames shall be fixed with expandable fasteners of HILTI, Wurth or equivalent make of specified size with necessary plastic sleeves and galvanized M.S. screws including drilling holes complete as per the instruction of Engineer in charge. Size of fastener to be 10mm dia x 140mm long

Frame: - Second class teak wood frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length.

Shutter: - Providing and fixing ISI marked 35 mm thick flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters including ISI marked Stainless Steel ball bearing hinges with necessary screws.

Lipping with 2nd class teak wood battens 25 mm minimum depth shall be provided on all edges of flush door shutters.

1mm thick decorative high pressure laminated sheet (hot press factory made) of plain / wood grain in gloss / matt/ suede finish as required with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS: 2046 Type S, including adhesive of approved quality shall be provided on both sides of door shutter.

Guarantee: - Flush door shall be moisture resistance and proper adhesive and the agency shall submit minimum 5-year guarantee against the same.

9. Plastering internal and external plaster work:

The work shall be done in accordance with CPWD specifications Volume - I & II with correction slips up to the last date of submission of tender documents.

Wherever directed by the Engineer in Charge, all joints between concrete frames and masonry in filling shall be expressed by a groove cut in the plaster. Where grooves are not called for, the joints between concrete members and masonry in filling shall be covered by fibre/plaster mesh strips of Arpitha or equivalent make shall be used over junctions of concrete and masonry or two dissimilar materials about 200mm wide fixed with GI wire nails etc. which shall be in position before plastering.

Providing chicken mesh of 300 mm wide in the junction of dissimilar materials, over chases of electrical conduit and concealed pipeline before plastering on inner and outer side of junctions.

Necessary drip course shall be provided in Chajja, Balcony, Projecting Roof, Beams etc. as per CPWD Specification.

10. Water Proofing Works:

10.1 General Conditions for Water Proofing Works

10.1.1 All Waterproofing system to be Green Certified product

10.1.2 The Agency shall be responsible for the water proofing design, proper installation and performance of waterproofing systems to make the sub-structure and superstructure completely watertight.

10.1.3 The work shall be got executed from the specialized agency as approved by the Engineer-in-Charge. Agency shall submit the names of at least three “water proofing specialist” from the list of approved makes given in this bid document along with information about their technical capabilities and list of similar works executed by the specialized agency in the past seven years for the approval of Engineer-in-Charge at least 100 days in advance from the start of waterproofing work. For the Quality assurance and quality of workmanship, waterproofing specialist applicator should be proficient in handling and installing water proofing membrane / crystalline compound etc.

10.1.4 Total quantity of the water proofing compound required shall be arranged only after obtaining the prior approval of the make by Engineer-in-Charge in writing. Materials shall be kept under double lock and key and proper account of the water proofing compound used in the work shall be maintained. It shall be ensured that the consumption of the compound is as per specified requirements.

10.1.5 The finished surface after water proofing treatment shall have adequate smooth slope as per the directions of the Engineer-in-Charge.

10.1.6 Before commencement of treatment on any surface, it shall be ensured that the outlet drain pipes / spouts have been fixed and the spout openings have been eased and rounded off properly for easy flow of water.

10.1.7 The approved specialized agency for the work of water proofing will have to execute a guarantee bond in prescribed proforma for removing any defects for at least 10 years. Guarantee bond shall be signed by both the specialized agencies as approved by the Engineer-in-Charge and the main Agency to meet their liability under the guarantee bond. However, the sole responsibility about the efficiency of water proofing treatment shall rest with the main agency. Any leakage /defects in waterproofing arising during the defect liability period shall have to be got attended immediately within a reasonable time and rectified by the main Agency at their cost to the satisfaction of the Engineer-in-Charge. This would include any incidental cost e.g. flooring, filling, tilling, piping and plaster etc. complete and nothing shall be payable to the agency on this account.

10.1.8 5% of the cost of water proofing work shall be retained as additional security deposit and the amount so withheld would be released after ten years from the date of completion of the entire work under the agreement. If the performance of the work done is found unsatisfactory and any defects noticed during the guarantee period, they shall be rectified by the agency within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of the agency.

- 10.1.9** In all waterproofing works, due care shall be taken on the openings, around pipes or any other service ducts / pipes etc. by using epoxy painting around it and providing bond with non-shrinkable water proof epoxy grout GP2 after sealing the bottom opening.
- 10.1.10** The specifications and method statement shall be submitted by the Agency well in advance before the start of execution. The execution will be done only by the applicator authorized by the manufacturer and after due approval of Engineer-in-Charge. Method statement for each type of water proofing shall have to be provided by the firm and work execution to be taken up only after approval of the Engineer-in-charge for the same.
- 11.1 WATER PROOFING TREATMENT IN SUNKEN PORTION OF WCs, BATHROOMS ETC.**
- 11.1.1 Preliminaries to be Attended**
The preliminaries shall be attended as described in clause 22.3.1.
- 11.1.2 Preparing Surface, Fixing Pipes and Fittings**
In this case, unlike as described in clause 22.3.2, no hacking of surface need be made, but only extra mortar sticking to the surface should be removed and the surface should be cleaned thoroughly. Fixing 'P' trap etc. shall be done as described in Clause 22.3.2.
- 11.1.3 Providing and Laying of Slurry for First Layer**
The consistency of the slurry should be such as to cover the desired area by using 0.488 kg of blended cement per sqm of area.
On deciding the correct quantity of water required per sqm. area the required quantity of slurry should be prepared which can be applied over the desired surface within half an hour of mixing with 0.488 kg. of grey cement + 0.253 kg. water proofing compound as per manufacturer specifications + x litres of water per sqm. area and the required quantity of slurry thus prepared should only be used for first application.
The first layer shall be applied with painting brushes over the specified and dampened area carefully including the corners, holes on the surfaces and joints of pipes in concrete etc. and the application should continue at least upto 150 mm height of fixtures of pipes from the surface. The surface on application shall be air cured for 4 hours.
- 11.1.4 Providing and Laying of Slurry for Second Layer**
The quantity of slurry required for second application to be covered within an hour of mixing shall be prepared with 0.242 kg. cement + 0.126 kg. water proofing compound + y litres of water per sqm. area and the required quantity of slurry thus prepared should only be used for second application.
The application of 2nd layer of slurry is same as for first layer as detailed in clause 22.5.3. The applied surface shall be allowed to air cure for 4 hours and thereafter water curing shall be done for full 48 hours.
In case no further work as described above is to be taken up immediately on completion of water proofing treatment due to any reason it is recommended to protect the treated portion with cement plaster 1:4 as a protective layer for which separate payment shall be made to the contractor.
- 11.1.5 Measurement**
Length and breadth shall be measured along the finished surface correct to a cm and area shall be worked out to nearest 0.01 sqm
- 11.1.6 Rate**
The rate shall include the cost of all labour and materials involved in all the operations described above. The cost of plastering shall be measured and paid for separately.
- 11.1.7 PODIUM WATER PROOFING:**
The Horizontal and vertical water proofing at podium shall be done as per DSR item no. 22.27 and 22.28 with relevant CPWD specifications.
- 12.1 CONCRETE ADMIXTURES:**
- Admixtures in recommended proportions shall be mixed in all grades of RCC as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability. Also, Superplasticizer should reduce drying shrinkage tested as per ASTM C157 and ASTM C1698 & should also reduce chloride penetration in concrete tested as per NT BUILD 492 & ASTM C 1202. Reduction of shrinkage and chloride penetration will enhance the durability of concrete.
 - Bipolar corrosion inhibiting admixture shall be added at a dosage of min.2 Kgs/Cum in all grades of concrete, exhibiting a noble free corrosion potential (FCP) of 120 mV compared to control concrete and the CPCIA shall be free from nitrites, chromates and non-migrating types having inhibition efficiency of minimum 80% even in the presence of severe chloride environments, which shall form impermeable film

on surface of rebar after migration upto 20cm as evaluated by CSIR-CECRI. tested & evaluated at RDSO as per Specifications No- M&C/PCN/126-2008 & BS-88R acceptance criteria.

- c) Integral crystalline in recommended proportions shall be mixed in all grades of RCC integral crystalline admixture for waterproofing treatment to RCC structures like basement raft, retaining walls, reservoir, sewage & water treatment plant, tunnels / subway and bridge deck etc. at the time of transporting of concrete into the drum of the ready-mix truck, using integral crystalline admixture @0.80% (minimum) to the weight of cement content per cubic meter of concrete) or higher as recommended by the manufacturer's specification in reinforced cement concrete at site of work.

The material shall meet the requirements as specified in ACI-212-3R- 2010 i.e. by reducing permeability of concrete by more than 90%, compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure. The crystalline admixture shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.

13 SUPPLY, FABRICATION, TRANSPORTATION, ERECTION AND PAINTING SPECIFICATIONS OF STRUCTURAL STEEL PLATE GIRDER AND OTHER STRUCTURAL ELEMENTS

13.1 STRUCTURAL STEELWORK SPECIFICATIONS- GENERAL

13.2 Scope of Specification

This specification covers the scope of work of structural steel works, submittals by the Contractor, applicable codes of practice for structural steel work and the specifications for the materials to be used, including steel, bolts & nuts, washers etc and the storage thereof.

13.3 Scope of Work

The scope of work for the contractor in respect of structural steel work shall cover, but shall not be limited to the following:

- A. Preparation of complete detailed shop fabrication drawings by using latest software like Tekla or any superior, based on the design drawings for approvals, required for all the permanent structures.
Submission of revised design, with calculations and detailed fabrication drawings, in case any substitution of the designed sections is required.
- B. Submission and getting approval of shuttering, staging and scaffolding details for erection of "Steel structure"
- C. Procurement and testing of all raw structural steel materials in lots for fabrication taking into account wastage margin etc., sand blasting as per specifications including storage and upkeep of the materials.
- D. Providing all materials, labour, tools & plant and equipments and all types of consumables required for fabrication using submerged arc welding or as mentioned in approved fabrication drawing including all necessary bolts, nuts, washers with wastage margins.
- E. Fabrication of the steel works in accordance with the approved fabrication drawings, including all shop assembling, matching and marking. Design, manufacture/fabrication and provision of all jigs, fixings, manipulators etc. required for the fabrication are to be included in item.
- F. Provision of shop painting including all primers etc. to all fabricated steelwork, as per requirements of the related specification of the painting.
- G. Suitably marking, bundling and packing for transport of all fabricated materials.
- H. Preparing and furnishing detailed bill of materials, drawing Office dispatch lists, Bolts Lists and any other lists of bought out items required in connection with the fabrication of the structural steelwork.
- I. Loading and transporting all fabricated steelwork and field connection materials including site unloading and erection of structure in final position with all HSFG bolts, nuts, bearing etc.
- J. To submit erection plan showing a methodology & procedure for erection compatible with the details of fabrication. Also, complete drawings & phase wise instructions for all the activities required to erect steel structure in final position, shall be submitted.
- K. The contractor shall provide general assistance during complete erection for solving any problem related to fabrication or site assembling of the structural steelwork. The contractor shall ensure the presence of the qualified and experienced Erection Engineer during complete erection work at site.
- L. All major/ minor modifications of the fabricated steel structures, as directed by the Engineer-in-charge, including but not limited to the following:
 - i) Removal of bends, kinks, twists etc. for parts damaged during transportation and handling.
 - ii) Cutting, chipping, filling, grinding etc. if required or preparation and finishing of site connections.
 - iii) Reaming of holes for use of higher size bolt if required.
 - iv) Re-fabrication of parts damaged beyond repair during transport and handling or re-fabrication of parts which are incorrectly fabricated.

- v) Fabrication of parts omitted during fabrications by error, or subsequently found necessary.
- vi) Drilling of holes which are either not drilled at all or are drilled in incorrect location during fabrication.
- vii) Carry out tests in accordance with the related Specification which will be inspected by Engineer-in-charge.
- viii) Site touch up for the paints damaged during transportation & handling and final finish coat on the structure as per specification.
- ix) Details of erection equipment machinery including capacity & specifications, tools, tackles etc. to be used for erection purpose.
- x) Necessary formwork & staging required for erection of structural steel Plate girder including design of formwork for all the anticipated loads.
- xi) All procedures and tests on welds as per specifications and welded parts to ensure the strength requirements of joints.

13.4 PRODUCTS

13.5 Materials

- a. All materials to be supplied by the Contractor shall conform to relevant Indian Standards as approved by the Engineer-in-charge.
- b. Steel materials required for the work shall be free from imperfections, mill scales, slag intrusions, laminations, pitting, rusts etc. that may impair strength, durability and appearance. All materials shall be of tested quality only. Test Certificates in respect of each consignment shall be submitted to Engineer-in-charge before use in work. Whenever the materials are permitted for procurement from identified stocks, a random sample shall be tested at an approved laboratory, as directed by the Engineer-in-charge.

13.6 Structural Steel

Structural steel conforming to IS:2062 : E 350-BR (minimum grade) irrespective of anything other grade specified in structural drawings, shall be used for all members of dome structures including bracings, gussets plates etc.

13.7 STORAGE OF MATERIALS

13.8 General

All materials shall be so stored as to prevent deterioration, and to ensure the preservation of their quality and fitness for the work. If required by the Engineer-in-charge, the materials shall be stored under cover and suitably painted for the protection against weather condition. Any material, which has deteriorated or has been damaged shall be removed from site and replaced by new members, as directed by the Engineer-in-charge at no extra cost and time.

- A. The steel to be used in fabrication shall be stored in a separate stack clear of the ground section wise and lengthwise.
- B. The storage area shall be kept clean and properly drained. Structural steel shall be so stored and handled in such a manner that members are not subjected to excessive stresses and damage. Girders and beams shall be placed in upright position. Long members shall be supported on closely spaced skids to avoid unacceptable deflection.
- C. The Contractor shall have a suitable shop storage yard at his own premises for storing the fabricated steel structures and other materials. The yard shall have proper facilities such as drainage and lighting including access for cranes, trailers and other heavy equipments.
- D. All Shop / field connection materials, shop paints etc. shall be stored on racks and platforms, off the ground in a properly covered building by the contractor .
- E The contractor shall have proper arrangement for sand blasting of steel sections so that these sand blasted material may be used for fabrication wherever required.

13.9 STRUCTURAL STEELWORK SPECIFICATION FOR WELDED STRUCTURE

13.10 General Scope of Specification

This Specification covers the supply, fabrication transportation and erection at Site of welded structural steelwork, including the supply of approved consumables, electrodes, wires and other materials required for fabrication and field connections of all structural steelwork covered under the scope of the Specification. The shear connectors studs as specified in the drawing shall also be welded in the shop.

13.10.1 General

All workmanship shall be in accordance with the best practices in modern structural shops. Greatest accuracy shall be maintained in the manufacture of every part of the work and similar parts shall be strictly interchangeable. The contractor shall not proceed with any welding until the Engineer-in-charge has approved his welding plan, which shall include.

- All information's on welding procedures, equipment, additives and preheating during welding operation.
- Details of non-destructive testing methods
- Precautions with regard to welding shrinkage
- Possible treatment of completed welds by grinding
- Procedure and programme of welding sequence

During Design & Detailing of component lengths, care has been taken to avoid butt weld in built up members. Therefore it is essential to use only nearest size and length of section that have been procured to scheduled sizes and lengths by proper planning by contractor. No butt weld shall be carried out without approval of Engineer-in-charge.

13.10.2 Templates

Templates used throughout the work shall be of steel. In cases where actual materials have been used as templates for drilling similar pieces, the Engineer-in-charge shall decide whether such materials are fit to be used as parts of the finished structure.

13.10.3 Straightening

All materials shall be straight and free from twists, and if necessary, before being worked, shall be straightened and/or flattened by pressure, unless required to be of curvilinear form.

13.10.4 Clearance

The clearance between fraying surface of bolted connections shall not be greater than 1mm at each end. If separation is between 1 to 3mm, the surface should be tapered to eliminate the separation. Separation of 3mm or more shall be filled with filler plates / washers. Such situations may be avoided and if situations are more , the correction may be carried out by the contractor as per the direction of the Engineer-in - charge.

13.10.5 Shearing, Cutting and Planning

Cutting shall be done automatically. Cutting by shearing machine may be used for plates not exceeding 10 mm in thickness provided that the plate edges be fully enclosed in a weld. For Plates above 10mm, Oxygen cutting/flame cutting may be used provided a smooth and regular surface free from cracks and notches is secured.

1. Chipping of edges of plates, wherever necessary, shall be done without damaging the parent metal. Chipped edges shall be ground to a neat finish and sharp corners and hammered rough faces shall be rounded off.
2. The edges and ends of all cut/sheared plates shall be planed/ground. Edge preparation for welding may be done by machine controlled flame cutting, with edges free from burrs should be clean and straight.
3. The butting surfaces at all joints of girders shall be planed so as to butt in close contact throughout the finished joint.

13.10.6 Polyester powder coated aluminium (minimum thickness of polyester powder coating 60 micron) windows

Aluminium work for doors, windows, ventilators and partitions (fixed and shutter) shall be with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket (thermal break profile) etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.

Insulated profiles shall be of Polyamide for thermal separation of having U value not more than 3.3 w/m² degree C, to minimize the thermal effect of the environment on the building's air conditioning in Aluminium profiles of approved door/window/ventilator systems, as per technical specifications, drawings and direction of Engineer-in charge complete.

Hardwares in Aluminium thermal break windows/doors/ventilators shall be with proper water drainage slots & gaps and wool pile for dust proof along with silicone at crimping joints in sliding and casement systems with required hardware such as Crimping/Cleat Corners, Wool piles, EPDM Gasket, Friction stay

for openable, with Two-point locking system to with stand the weight of Insulated Glass panel, etc., as per technical specifications, drawings and direction of Engineer-in charge complete.

13.10.7 Glass for Structural Glazing / Geodesic structure

Double glazed hermetically sealed glazing in Curtain glazing/structural glazing and aluminium windows/ventilators and partition etc shall be with 6mm thick low-e coated toughened glass 12mm air gap, 6mm clear toughened glass, U-value less or equal to 1.8w/k, EPDM gasket, perforated aluminium spacers, desiccants, sealant.

Safety glazing requirement to follow as per standard decided and approved by the consultant of Engineer-in-charge.

14 Flooring Works:

- i) Various types of flooring, skirting, dado and door, window sill /jamb work shall be carried out by the contractor referring the floor finishing layouts as per Architectural drawings. Contractor needs to refer room data sheet / schedule of finishes and material palette attached with tender document.
- ii) Contractor will submit all material or finishing samples to Engineer in charge for approvals before executing the respective job.
- iii) Contractor shall need to protect the finished floor surface during execution of other activities using Cello or approved equivalent bubble guard of minimum 500 GSM thick (minimum size 8' x 4'), fixing the same over floor surface with mastic tape or another approved adhesive. Removing protective layer during handing over, disposal of all debris out of site, cleaning the entire covered flooring area as directed by the Engineer-in-charge.
- iv) All flooring, skirting, dado and window sill works will be done in accordance with CPWD specifications Volume I & II with correction slips up to the last date of submission of tender documents. The provision of IS Codes listed in CPWD specifications shall form a part of this document with all latest codes.
- v) Pattern for any type of flooring / dado shall be as per detail drawings submitted. The cost of flooring work is inclusive all material, workmanship, labour, pattern, colour, style, skirting etc. complete. No extra payment on this ground shall be entertained. The joints for all flooring to run in a straight line and should follow as mentioned below:
 - a) For Marble stone flooring and dado: 0mm (Zero mm) joint filled with approved adhesive other and else specified.
 - b) For any type Tile / Granite / Kota Stone floor & dado: 1mm (one mm) joint filled with approved adhesive other and else specified.
 - c) For any type of tile floor & dado: 3mm spacer joint filled with approved adhesive other and else specified.

i. Kota Stone Work:

This can be read for Flooring / Skirting / Dado / Cladding works.

The work to be carried out in areas as mentioned in flooring layouts, room data sheet and material palette and as per the CPWD Specifications Volume I and II with correction slips up to the last date of submission of tender documents.

ii. Red sand /White Sand Stone Work:

This can be read for Flooring / Skirting / Dado / Cladding works. The work to be carried out in areas as mentioned in flooring layouts, room data sheet and material palette and as per the CPWD Specifications Volume I and II with correction slips up to the last date of submission of tender documents. The provision of IS Codes listed in CPWD specifications shall form a part of this document with all latest codes.

iii. Vitrified / Ceramic/ Tactile Tile Work:

The work shall be carried out in areas as mentioned in flooring layouts, room data sheet and material palette and as per the CPWD Specifications Volume I and II with correction slips up to the last date of submission of tender. The tiles shall be confirming to the related BIS codes up to the latest revisions. The testing shall also be got done from approved labs in accordance with the BIS codes for the various parameters and as referred.

Contractor to obtain prior approval of Engineer in charge for tiles make, sizes, shade and color as per Architectural drawings and material palette before bringing it to site.

15 TESTING / INSPECTION AND GUARANTEE:

During the process of manufacturing the Door/partition/windows or any other materials by the agency, the contractor shall arrange an inspection of the factory by the team formed by the Engineer-in-charge. The team formed by the Engineer-in-charge/E-in-C at random basis will select the door during the process or end of the manufacture and conduct the test at an approved laboratory in the presence of the representative

of Engineer-in-charge and ensure that the Door/partition/windows or any other materials shall comply with the set-out criteria.

The Contractor shall Provide a Guarantee certificate and Test certificate for the tested the Door/partition/windows/ any other materials in an acceptable format.

Development Work

- a) 60mm thick cement concrete paver block of M-35 grade with approved colour, design & pattern factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, shall be of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour& pattern over 50mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge.
- b) **SANITARY INSTALLATIONS /WATER SUPPLY / DRAINAGE: -**
The contractor shall be responsible for 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.

The contractor shall furnish all labour, materials and equipment, transportation and incidental necessary for supply, installation, testing and commissioning of the complete Plumbing / Sanitary system as described in the Specifications and as shown on the drawings.

This also includes any material, equipment, appliances and incidental work not specifically mentioned herein or noted on the Drawings/Documents as being furnished or installed, but which are necessary and customary to be performed under this contract. The Plumbing / Sanitary System shall comprise of following:

- Sanitary Fixtures and Fittings.
- Internal and External Water Supply.
- Internal and External Drainage.
- Balancing, testing & commissioning.
- Test reports and completion drawings.

For the work of water supply and sanitary installations, the contractor shall engage the approved licensed plumbers and submit the name of proposed plumbing agencies with their credentials for approval of the Engineer-in-Charge. For quality control & monitoring of workmanship, contractor shall assign at least one engineer who would be exclusively responsible for ensuring strict quality control, adherence to specifications and ensuring top class workmanship for the installation.

The work in general shall be carried out as per CPWD Specifications (Volume II) 2019 with up-to-date correction slips.

The tendered rates shall include the cost of cutting holes in walls, floors, RCC slabs etc. wherever required and making good the same for which nothing extra shall be paid.

Nothing extra for providing & fixing CP Brass caps /extension pieces wherever required for CP Brass fittings shall be paid beyond the rates payable for corresponding CP Brass fittings.

The contractor shall examine all architectural, structural, plumbing, electrical and other services drawings and check the as-built works before starting the work, report to the Engineer In-Charge any discrepancies and obtain clarification. Any changes found essential to coordinate installation of his work with other services and trades, shall be made with prior approval of the Engineer In-Charge without additional cost to the department. Samples of all materials like valves, pipes, cp fittings and sanitary fittings etc. shall be submitted to the Engineer In-Charge prior to procurement for approval and retention by Engineer In-Charge and shall be kept in their site office for reference and verification till the completion of the Project. Wherever directed a mockup or sample installation shall be carried out for approval before proceeding for further installation without any extra cost.

Approval of shop drawings shall not be considered as a guarantee of measurements or of building dimensions. Where drawings are approved, said approval does not mean that the drawings supersede the contract requirements, nor does it in any way relieve the contractor of the responsibility or requirement to furnish material and perform work as required by the contract.

All materials and equipment shall conform to the relevant Indian Standards and shall be of the approved make and design. Makes shall be in conformity with list of approved manufacturers as per the tender document.

Balancing of all water systems and all tests as called for the CPWD Specifications shall be carried out by the contractor through a specialist group, in accordance with the Specifications and Standards. The installation shall be tested and shall be commissioned only after approval by the Engineer In-Charge. All tests shall be carried out in the presence of the representatives of the Engineer In-Charge and nothing extra shall be payable on this account.

The contractor shall submit completion plans for water supply, internal sanitary installations and building drainage work within 15 days of the date of completion. These drawings shall be submitted in the form of two sets of CDs and four portfolios (300 x 450 mm) each containing complete set of drawings on approved scale indicating the work as installed. These drawings shall clearly indicate complete plant room layouts, piping layouts and sequencing of automatic controls, location of all concealed piping, valves, controls and other services. In case the contractor fails to submit the completion plans as aforesaid, security deposit shall not be released and these shall be got prepared at his risk and cost.

The CCI/CI/PVC pipe and GI pipe etc. wherever necessary shall be fixed to RCC columns, beams etc. with Rawl plugs and nothing extra shall be paid for this.

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

The pig led to be used in joints of 150mm, 100mm, 75mm, 50mm dia of sand cast iron, centrifugally cast (Spun) iron pipes shall be as per relevant CPWD Specifications.

The contractor shall bear all incidental charges for cartage, storage and safe custody of materials and shall construct suitable godowns, yards at the site of work for storing materials so as to be safe against damage by sun, rain, fire or theft etc., at his own cost and also employ necessary watch and ward establishment for the purpose at his own cost.

All fixtures and fittings shall be provided with all such accessories as are required to complete the item in working condition whether specifically mentioned or not in the Schedule of Quantities, specifications, elsewhere in this tender document & drawings. The quoted rates shall be deemed to be all inclusive for a complete item fit for use including all materials, labour, T&P, specials, equipment, testing & commissioning etc. Accessories shall include proper fixing arrangement, brackets, nuts, bolts, screws and required connection pieces. Nothing extra whatsoever shall be payable on this account.

Fixing screws shall be half round head chromium plated brass screws with C.P. washers where necessary or otherwise as provided in the item.

Porcelain sanitary ware shall be glazed vitreous China of first quality free from warps, cracks and glazing defects and shall conform to relevant BIS codes. Colour of sanitary ware, shall be specified or as selected by the Engineer-in-Charge. Nothing extra shall be payable on this account.

Horizontal pipes running along ceiling shall be fixed on structural adjustable clamps of approved design. Horizontal pipes shall be laid to uniform slope and the clamps adjusted to the proper levels so that the pipes fully rest on them and are properly secured.

Contractor shall provide all nuts, bolts, welding material and paint the Clamps with one coat of red oxide and two or more coats of black enamel paint.

Slotted angle/channel supports on walls shall be provided wherever shown on drawings. Angles/channels shall be of sizes shown on drawings or specified in schedule of quantities. Angles/channels shall be fixed to brick walls with bolts embedded in cement concrete blocks and to RCC walls with suitable anchor fasteners. The spacing of support bolts horizontally shall not exceed 1m.

Wherever M.S. clamps are required to be anchored directly to brick walls, concrete slabs, beams or columns, nothing extra shall be payable for clamping PA arrangement and making good with cement concrete 1:2:4 mix (1 cement: 2 coarse sand: 4 stone aggregate 20 mm nominal size) or as directed by the Engineer-in-Charge.

The ground colour shall be applied throughout the entire length of pipe. Colour bands shall be superimposed on the ground colour and shall be applied near valves, junctions, joints, service appliances, bulkheads, valves, etc. for clear identification of fluid being carried and to avoid confusion. The relative proportional widths of the first colour band to the subsequent bands shall be 4:1. The minimum width of the narrowest colour band shall be 25 mm.

Rates for all items quoted shall be inclusive of all work and items given in the above-mentioned specifications and Schedule of Quantities and applicable for the work under floors, in shafts or at ceiling level at all heights and depths. All rates are inclusive of cutting holes and chases in RCC and masonry work and making good the same. All rates are inclusive of pre testing and onsite testing of the installations, materials and commissioning.

Cleaning and Disinfection of Pipelines: -

On completion of hydraulic tests and before a pipe is disinfected, it shall be proved to be free from obstruction, debris and sediment by scouring or by any other process which the Engineer-in-charge may prescribe. Upon satisfactory completion of testing and cleaning, the pipelines shall be disinfected as ordered. Chlorine solution shall be applied at the charging point as the pipeline is being filled and dosing shall be continued until the pipeline is full and at least 50 parts of chlorine per million parts of water have been made available and distributed evenly. If ordinary bleaching powder is used, proportions will be 150 gms of bleaching powder to 1000 litres of water. If a proprietary brand is used, the proportion shall be as specified by the manufacturer. The treated water shall be left in pipeline for a period as directed but not exceeding 24 hours chlorine residual tests shall be taken at various points along the pipeline. The disinfection process shall be repeated until the sample of water taken from the pipeline are declared fit for human consumption by a recognized laboratory.

Opening, cut out in slabs, beams as required shall be left out by inserting PVC spouts of required size before casting of RCC members. Nothing extra shall be paid on this account.

The entire responsibility for the quality of work will however rest with the building contractor only.

1.1 FINISHING (PAINT)

General

The work shall be done in accordance with CPWD Specifications -2019 Vol. I to Vol. II with upto date correction slips and the manufacturer's specifications where CPWD specifications are not available.

The quantity of paint required as per the theoretical consumption including wastages, if any, shall be procured from the approved manufacturer or his authorized dealers and deposited with the representative of the Engineer-in-Charge at site. The paint shall be obtained in smaller packing (around 20 litre).

The paint shall be kept in the joint custody of the Department and the Contractor and day- to-day account of receipt and issue shall be maintained. However, the safe custody and watch and ward shall remain to be the responsibility of the Contractor. Nothing extra shall be payable on this account.

- a. The name of the manufacturer, manufacturer's product identification, manufacturer's mixing instructions, warnings and instructions for handling and application, toxicity and date of manufacturing and shelf life shall be clearly and legibly mentioned on the labels of each container. These details shall be kept in record. The material shall be consumed in the order of material brought to site, first come first consume basis. The Contractor shall obtain and submit to the Department the manufacturer's certificate for compliance of the various characteristics of the materials as per the manufacturer's specifications and also copy of the manufacturer's test report for the record.

- b. Empty containers of the paints shall not be removed from site till the completion of the work unless otherwise permitted and shall be removed only with the permission of the Engineer-in-Charge or his authorized representative at site of work.
- c. All arrangements for measuring, dosing etc. at site shall be made by the Contractor. Nothing extra shall be payable on this account.
- d. The Contractor shall apply samples of each kind of paint for the approval of shade and colour as per the directions of the Engineer-in-Charge before procuring the paint in mass.
- e. All incidental charges of cartage, storage, wastage, safe custody, scaffolding, cost of samples and mock ups etc. shall be borne by the Contractor and no claim, whatsoever, shall be entertained on this account.
- f. For the item of Epoxy paint, it is clarified that the surface for painting shall be prepared by shot blasting. The metal surface shall be cleaned off any rust using sand/ emery paper and also by mechanical brush / power tool cleaning using grinder as required as per the manufacturer's specifications etc. The sand blasting as such is not required to be carried out on the surface. However the epoxy primer shall be applied immediately after the surface preparation.
- g. For the item of melamine polish, the item includes all the sand papering required to be carried out and wiped properly for cleaning all the loose dust particles. Necessary masking tapes are to be provided where different finishing work is to be carried out, so that the melamine polish does not spread to the other surfaces. Care should be taken while removing the masking tape, so that the surface is not damaged. Cost of melamine polish includes the cost of providing and removing the masking tapes wherever required. The surface shall be sand papered using emery paper no. 180, 320 and 400 as required. Any staining required shall be carried out by applying Apcolite Wood Stain or equivalent, to achieve the required colour and shade as directed by the Engineer-in-Charge. The item of melamine polish is deemed to include cost of such staining. Where French spirit polish is to be carried out the rate is inclusive of cost of staining and wood filler (Apcolite wood filler of Asian Paints or Asian NC Clear Wood filler or equivalent of other brands ICI and Pidilite Industries) if required. Nothing extra shall be payable on this account.

QUALITY ASSURANCE

For Quality Assurance the Contractor shall ensure that color and texture of finish coats, shall match the approved sample. Also,

- (i) Colour of priming coat shall be lighter than body coat.
- (ii) Colour of body coat shall be lighter than finish coat.
- (iii) Colour prime and body coats as required so as not to show through the finish coat and to mask surface imperfections.

Before starting application of each type of paint, the Contractor shall apply the paint to a specimen area, not to exceed 10 square meter and get finish and texture approved and shall use it as a sample for the remainder of the work.

1.2 PARTICULAR SPECIFICATION AND CONDITIONS FOR ALUMINIUM WORK

The work shall be executed as the CPWD Specification 2019 Volume – I & Volume – II and as per the direction of Engineer-in-charge in view of the requirement of client department.

Special Conditions for Epoxy Flooring

1. Selection of Make & Submission of Samples

The contractor shall propose **three (03) approved makes** from the list of approved makes specified in the tender document. A sample area of **10.00 sqm** shall be executed for each proposed make at the stretcher ramp or at a location identified by the Engineer-in-Charge. The final make shall be selected and approved by the Engineer-in-Charge and only the approved make/sample shall be used for the entire work.

2. **Method Statement and Technical Data:** Before commencement of the work, the contractor shall submit the manufacturer's technical data sheets, product specifications, detailed method statement, quality assurance plan, application methodology, surface preparation procedure, curing requirements, testing procedure, and maintenance manual for approval by the Engineer-in-Charge.

3. **Performance Warranty / Guarantee:** The contractor shall furnish a **Performance Warranty/Guarantee for a period of five (05) years** from the date of completion of the work as per Annexure-I on Page no 60-61. The warranty shall be jointly issued by the **epoxy flooring manufacturer (OEM)** and the contractor, covering defects such as peeling, blistering, cracking, delamination, debonding, loss of adhesion, abnormal wear, colour deterioration, or any failure attributable to defective materials, workmanship or application.
4. **Surface Preparation:** Surface preparation shall include mechanical grinding/shot blasting, removal of laitance, loose particles, oil, grease and contaminants, repair of cracks and undulations using approved epoxy repair mortar, and vacuum cleaning to achieve the surface profile recommended by the manufacturer. No epoxy flooring shall be applied unless the surface preparation has been inspected and approved by the Engineer-in-Charge.
5. **Application by Authorized Applicator:** The epoxy flooring shall be applied only by the manufacturer's **authorized and trained applicator**, and documentary evidence of such authorization shall be submitted before commencement of the work.
6. **Quality Control and Testing:** The contractor shall carry out all necessary quality control tests, including thickness measurement, adhesion testing, surface finish inspection and any other tests recommended by the manufacturer or directed by the Engineer-in-Charge. All testing equipment, labour and consumables shall be arranged by the contractor at no extra cost. Testing charges shall be borne by the contractor.
7. **Rectification During Warranty Period:** Any defect observed during the warranty period shall be rectified by the contractor in coordination with the manufacturer, at no additional cost to the Department, within the time stipulated by the Engineer-in-Charge. Failure to do so shall entitle the Department to carry out the rectification at the contractor's risk and cost.
8. **Measurement:** Measurement of epoxy flooring shall be based on the finished area actually executed and accepted by the Engineer-in-Charge. No separate payment shall be made for sample panels, surface preparation, repairs, testing, warranty obligations, or any incidental works necessary for satisfactory completion unless otherwise specified in the Schedule of Quantities.
9. **Withheld amount:** The approved epoxy flooring manufacture and the contractor for the work of **epoxy flooring manufacturer** will have to execute a guarantee bond in prescribed proforma as per Annexure-I on Page no. 60-61 for removing any defects for at least 05 years. Guarantee bond shall be signed by both the **epoxy flooring manufacturer** and the main Agency to meet their liability under the guarantee bond. However, the sole responsibility about the efficiency of **“epoxy flooring work/system”** shall rest with the main agency. Any defects in **epoxy flooring** arising during the defect liability period shall have to be got attended immediately within a reasonable time and rectified by the main Agency at their cost to the satisfaction of the Engineer-in-Charge.

5% of the cost of total gross work done of epoxy flooring shall be retained as additional security deposit and the amount so withheld would be released after five years from the date of completion of the entire work under the agreement. If the performance of the work done is found unsatisfactory and any defects noticed during the guarantee period, they shall be rectified by the agency within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of the agency.

PROFORMA FOR JOINT GUARANTEE BOND FOR SPECIALIZED WORK (Annexure-I)

(To be executed on Non-Judicial Stamp Paper)

THIS DEED OF GUARANTEE made this _____ day of _____ 20____

BY

1. **M/s** _____ (Name of the Main Contractor), having its registered office at _____ (hereinafter called the "**Main Contractor**", which expression shall unless excluded by or repugnant to the context include its successors and permitted assigns) of the **FIRST PART**.

AND

2. **M/s** _____ (Name of the Specialized Applicator/Manufacturer), having its registered office at _____ (hereinafter called the "**Specialized Specialist/Applicator**", which expression shall unless excluded by or repugnant to the context include its successors and permitted assigns) of the **SECOND PART**.

IN FAVOUR OF

3. **THE PRESIDENT OF INDIA** represented by the Executive Engineer, _____ Division, CPWD, _____ (hereinafter called the "**Government**", which expression shall unless excluded by or repugnant to the context include his successors in office and assigns) of the **THIRD PART**.

WHEREAS:

- **A.** The Main Contractor was awarded the work of " _____ " vide Agreement No. _____ dated _____ (hereinafter called the "**Main Contract**").
- **B.** The Main Contract includes the sub-item/specialized work of **Epoxy Flooring / Specialized Flooring** as detailed in item(s) No. _____ of the Schedule of Quantities.
- **C.** The Specialized Specialist/Applicator has been approved by the Engineer-in-Charge to execute the said specialized work as a sub-agency/technical partner.
- **D.** Under the terms of the Main Contract, it is a condition precedent for the final acceptance of the work that the Main Contractor and the Specialized Specialist/Applicator shall jointly and severally guarantee the said specialized work for a period of _____ **Years** (specify period, e.g., 1 Year, 3 Years, 5 Years) from the certified date of completion of the work.

NOW THIS DEED WITNESSETH AND IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:

1. **GUARANTEE:** The Main Contractor and the Specialized Specialist/Applicator (hereinafter collectively called the "**Guarantors**") hereby jointly and severally guarantee that the Specialized Epoxy Flooring work executed by them shall remain completely sound, intact, and free from any defects including but not limited to delamination, peeling, cracking, chipping, blistering, or patchy discoloration for a period of _____ **Years** from the certified date of completion of the entire work.
2. **NOTICE & RECTIFICATION:** If any defect, failure, or deterioration is noticed in the said flooring work during the subsistence of this guarantee period, the Engineer-in-Charge shall give notice in writing to the Guarantors. The Guarantors shall, within _____ **days** (typically 7 to 15 days) from the date of receipt of such notice, rectify, repair, or redo the defective flooring work completely at their own cost, risk, and expense to the entire satisfaction of the Engineer-in-Charge.
3. **DEFAULT & RISK-AND-COST:** If the Guarantors fail to commence or complete the rectification work within the period specified in the notice, the Government/Engineer-in-Charge shall be entitled to get the

said rectification or re-doing of the epoxy flooring work executed through any other agency or by any other means at the **sole risk, cost, and expense of the Guarantors.**

4. **RECOVERY OF DUES:** The Government shall have the absolute right to recover all such costs, damages, and expenses incurred due to the default of the Guarantors from any money due or that may become due to the Main Contractor under this contract or any other contract with the Government, including forfeiture of the Security Deposit or Bank Guarantees held against this work.
5. **CONTINUITY:** The liability of the Guarantors under this deed is joint and several, and shall not be impaired, altered, or affected by any change in the constitution of either firm, nor shall it be affected by any extension of time or indulgence granted by the Government to the Main Contractor.

IN WITNESS WHEREOF the Guarantors have hereinto set their respective hands and seals on the day, month, and year first above written.

SIGNATURES AND SIGNING BLOCK

SIGNED, SEALED AND DELIVERED BY:

For the Main Contractor (First Part)

For the Specialized Applicator (Second Part)

(Signature of Authorised Signatory)

(Signature of Authorised Signatory)

Name: _____

Name: _____

Designation: _____

Designation: _____

Company Seal:

Company Seal:

IN THE PRESENCE OF TWO WITNESSES:

1. WITNESS NO. 1:

- Signature: _____
- Name: _____
- Address: _____

2. WITNESS NO. 2:

- Signature: _____
- Name: _____
- Address: _____

ACCEPTED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY:

Executive Engineer
Division, CPWD
(With Official Seal)

LIST OF PREFERRED MAKES (CIVIL)

S. No.	Material	Preferred make
1.0	STRUCTURAL & CIVIL	
1	Ordinary Portland Cement/ Portland Pozzolana Cement	ACC / ULTRATECH / AMBUJA / JK CEMENT
2	White Cement	BIRLA WHITE / J K WHITE / ULTRATECH.
3	Ready Mix Concrete	ULTRATECH / NDCON/ JK/ ACC
4	Reinforcement Steel – TMT bars (CRS) FE 500D grade minimum	SAIL / TATA STEEL LTD / RINL / JINDAL STEEL & POWER LTD / JSW
5	Mechanical Bar Couplers for Reinforcement	DEXTRA INDIA / SANFIELD INDIA / TATA
6	Re-barring Chemical, Mechanical Fastener, Anchor Fastener, Chemical Anchor Fastener, Core Cutting Machine/ Dry Stone Cladding Clamps, Expandable Fastener, Fire sealant, Smoke sealant	HILTI / WURTH / FISCHER
7	Structural Steel	TATA/ JSW STEEL LTD/ SAIL / JINDAL STEEL & POWER LTD / RINL
8	Super Plasticizer / Plasticizers /Admixtures/ Concrete curing compound/ /Polysulfide sealant/ Epoxy grouting compound	PIDILITE/ FOSROC / BASF/ CHRYSO (SAINT GOBAIN)/ ASIAN PAINTS
9	Crystalline waterproofing compound	PENETRON/ ZYPEXX BIOTECH/ STERLING TECHNOREDE/ XYPEX/SIKA
10	Fly Ash Bricks	KJS CONCRETE/ GARG BUILD SOLUTIONS(GYPSONA)/ ASHTECH INDUSTRIES PVT LTD.
11	AAC Block Adhesive	ULTRATECH / FERROUSCRETE / ARDEX ENDURA / MYK LATICRETE/ ASIAN PAINTS
12	Polymer modified Cementitious grout	MYK ARMENT / PIDILITE / SIKA / BASF/ FERROUSCRETE / ASIAN PAINTS
13	Curing Compound	PIDILITE/ FOSROC / FERROUSCRETE/ CHRYSO (SAINT GOBBIN)/ ASIAN PAINTS
14	Precast cover blocks of required grades	ACC, ULTRATECH, STEELMAX, FOSROC.
1.1	WATERPOOFING	
1	Acrylic Cementitious Coating	FOSROC / PIDILITE /VELOSIT
2	Elastomeric Acrylic UV resistant liquid applied coating	PIDILITE / MYK ARMENT / MYK ARMENT/ CHRYSO (SAINT GOBBIN)/ ASIAN PAINTS/ ZYPEXX BIOTECH,
3	Water Proofing Compounds (Admixtures, Plasticizer, Super Plasticizer)	FOSROC/SIKA BASF/DR. FIXIT/ TIKIDAN (Danomix Range)/ PENETRON
4	Water Proofing compounds (Integral) with cement for plaster & mortar	FOSROC (Conplast 421)/ DR FIXIT (LW+)/ SIKA (Sikacim)

S. No.	Material	Preferred make
5	Water Proofing compounds (for Bathroom/Toilets/Balcony/ & other wet areas)	FOSROC (Bush Bond)/ DR. FIXIT (Pidifine 2K)/CICO (Tapecrete)/ ASIAN PAINTS (Damp Block 2K)
1.2	DOOR, WINDOWS & WOOD WORK	
1	All Types of Ply boards	MERINO / GREENPLY / JAYNA/ Greenpanel Shuttering Ply
2	Laminates	MERINOLAM / GREENPLY / CENTURY LAMINATES / JAYANA
3	Veneer	MERINOLAM / GREENPLY / CENTURY
4	Moisture Resistant HDF/MDF Board	GREENPLY / CENTURY/USG BORAL/ DURO
5	SS Mesh 316 GRADE	GKD / WMW
6	Flush door shutters	CENTURY / DURO/MERINO /GREENPLY/JAYNA
7	Factory made wooden door frame	DURO/MERINO/CENTURY
8	Polycarbonate Sheet	GE LEXAN / DANPALON/ GALLINA / DPI SYSTEM / MPP/MG POLYPLAST
9	Decking Steel sheet	TATA STEEL / LLOYDS / JSW
10	Aluminium Louvers	KALCO/ NOTION/ ALSTONE/ HUNTER DOUGLAS
11	WPC	Kömmerring,/ Century/ Greenply/Rajshri Plastiwood
1.3	FINISHING	
1	Polyester Powder Coating Shades	ASIAN PAINTS/ NEROLAC / BERGER /AKZONOBEL/ DULUX/ SHALIMAR
2	Cement based Wall Putty	BIRLA WHITE / JK WHITE / BERGER / SHALIMAR/ ASIAN PAINTS
3	Adhesives	ANCHOR / DUNLOP / PIDILITE- FEVICOL
4	Epoxy Paint	AKZONOBEL (DULUX)/ ASIAN PAINTS / FOSROC / BERGER /STP LTD/ SHALIMAR
5	Silicone / Weather Sealant	WACKER / DOW CORNING / GE /MCOY / STP LTD/ TIKIDAN (Tiki Siliseal/ Tikiseal PU Range)
6	Paint: Acrylic Emulsion	ASIAN PAINTS (Premium Interior Emulsion paint)/ BERGER (Rangoli Total Care)/ ICI DULUX (Super Cover) / NEROLAC (Beauty Gold)
7	Paint: Premium Acrylic	ASIAN PAINTS (Royale Luxury Emulsion)/ BERGER (Silk)/ ICI DULUX (Velvet Touch)/ NEROLAC (Impression)/ BIRLA OPUS PRIME (One Pure Elegance)
8	Paint: Plastic Emulsion	ASIAN PAINTS (Apcolite)/ BERGER (Easy Clean)/ ICI DULUX (Weather Shield)/ NEROLAC (Excel Super)/ BIRLA OPUS PRIME (E-30/E-50/Calista Neo Star)
9	Paint: Acrylic Smooth Exterior Paint	ASIAN PAINTS (Apex)/ BERGER (Weather Coat)/ ICI DULUX (3 in 1)/ NEROLAC (Impression)/ BIRLA OPUS PRIME (1-50/Calista Everclear)
10	Paint: Premium Acrylic Smooth Exterior Paint with Silicon Additive	ASIAN PAINTS (Apex Ultima)/ BERGER (Long Life 7)/ ICI DULUX (Weather Shield Max)/ NEROLAC (Excel total Super)/ BIRLA OPUS PRIME (E-70/ One True Look)
11	Paint: Synthetic Enamel Paint	ASIAN PAINTS (Apcolite Premium Gloss Enamel)/ BERGER (Luxol Hi Gloss)/ ICI DULUX (Gloss

S. No.	Material	Preferred make
		Synthetic Enamel)/ NEROLAC (Synthetic Hi Gloss)/ BIRLA OPUS PRIME (N-52/N-53/Sparkle Gloss/Style Cover Max)
12	Primer: Cement Primer	ASIAN PAINTS (Decoprime WT)/ BERGER (BP White)/ ICI DULUX (White Primer)/ NEROLAC/ BIRLA OPUS PRIME (I-10/Calista Pro Hide)
13	Primer: Steel Primer (Red Oxide Zinc Chromate Primer)	ASIAN PAINTS/ BERGER/NEROLAC/ICI DULUX/BIRLA OPUS (Red Oxide Primer/CMP RO Primer/SGE RO Primer)
14	Primer: Wood Primer	ASIAN PAINTS/NEROLAC/BURGER/ICI DULUX/BIRLA OPUS
15	Paint: Fire Retardant Paint	ASIAN PAINTS/ AKZO NOBEL/ WUERTH PROMAT/BIRLA OPUS
16	Melamine Polish	ASIAN PAINT MELAMINE GOLD/ WUDFIN OF PIDILITE/ TIMBERTONE OF ICI DULUX/ BIRLA OPUS ALLWOOD
1.4	STEEL & ALUMINIUM WORKS	
1	Stainless Steel Grade 316/304	JSW / SAIL/ TATA STEEL/ JSPL
2	Welding Electrodes	ADVANI-OERLIKON / MODI / TATA /ESAB
3	Dash / Anchoring Fasteners	HILTI / FISHER / WURTH
4	Anodised Aluminium Hardware (Heavy Duty)	HINDALCO /JINDAL ALUMINIUM/ BALCO/ NALCO/ INDALCO
5	Aluminium Work	JINDAL / HINDALCO / NALCO / INDALCO
6	Modular Stainless-Steel Railing, Accessories etc.	DORMAKABA / QRAIL/GEZE/ TECHNORAIL.
7	Aluminium Composite Panel	ALUCOBOND/ ALSTONE/ VIRGO/ ALUDECOR
8	Galvalume sheet	LLOYD/ KALZIP/ KINGSPAN JINDAL/ JSW/ TATA BLUESCOPE
1.5	FLOORINGS/ WALL TILES	
2	Floor & Wall Tiles: Rectified Ceramic/Vitrified (double charged) tiles (Double Charged)/ Antiskid/ Matt/ Glazed/ Full Body Vitrified tiles	SOMANY /KAJARIA/RAK
4	Bamboo wood flooring	EPITOME/ ECOGREEN FLOORING/ FLOOR INDIA
5	Engineered stone - Marble / Quartz	ASIAN / JOHNSON / QUTONE/ NITCO
6	Tile Adhesive / Stone Adhesive	BALENDURA / MYK LATICRETE / PIDILITE / SOMANY /FERROUSCRETE
7	Floor hardener	PIDITOP 333 BY PIDILITE / FOSROC / SIKA / BASF /STP Ltd./ FERROUSCRETE
8	Bonding Agent	NITOBOND EP OF FOSROC / SIKADUR 32LP OF SIKA / CONCRESEIVE 1414 OF BASF / STP LTD/ FERROUSCRETE
9	Epoxy Flooring	FOSROC / SIKA/ MYK LATICRETE / STP LTD/ FERROUSCRETE/ TREMCO/ASIAN PAINTS
10	Ceramic based Heat-Resistant Tiles	JOHNSON / SOMANY/ ORIENT BELL/ KAJARIA

S. No.	Material	Preferred make
	(10mm)	
11	Over deck foam Insulation	LLYODS / PIDILITE / STP LTD/ ASIAN PAINTS
12	C&D Waste Precast Elements (Kerb stones, Paver blocks, CC Blocks etc.)	6M CONCRETE / IL&FS / DALAL TILES INDUSTRIES/ KK MANHOLE/ PAV SPANIA/MAYUR
13	PVC skirting	REHAU / EBCO / LEGRAND
14	Tile Grout	MYK LATICRETE/ PIDILITE/BASF / FERROUSCRETE/ ASIAN PAINTS
15	Terracotta façade Solutions	HUNTER DOUGLAS/ CLAYTON/ UNISTONE
1.7	GLAZINGS	
1	Clear / Float /Frosted Glass / Looking Mirror	MODIGUARD / SAINT GOBAIN/ AIS
2	Toughened Glass / Hermetically sealed glass / High Performance Glass	MODIGUARD / SAINT GOBAIN/AIS
3	Glass Partition	DORMAKABA / HAFELE/ JAQUAR/ CERA/MODI SAINT GOBAIN
4	Zinc Titanium Sheet	RHEINZINK, NEDZINC, EL ZINC
1.8	HARDWARE	
1	Nuts / Bolts & Screws	HILTI / WURTH INDIA / FISCHER/
2	All type of hardware and fittings for all type of glazing / doors/ windows etc. including mortise latch & lock, tower bolt, ball bearing butt hinges, friction stay hinges, sliding door bolts, lever handle, magic eye, hydraulic door closer, etc.	DORMAKABA / HAFELE / GEZE/ ASSA ABLOY/DORSET
3	Modular Toilet Cubicles	MERINO / GREENLAM / DORMAKABA/ ASSA ABLOY/ CENTURY CENBOILPLUS
4	Hardware for Fire Check Door/ panic bar/ panic trim/ door closer/ hinges/ Handel/ tower bolt/door stopper/mortise lock / Dead Lock, etc.	DORMAKABA / ASSA ABLOY / GEZE / HORMANN
5	EPDM Gasket	IGP / CROWN GASKET / OSAKA
1.9	PLUMBING & SANITARY	
1	GI Pipes	JINDAL (HISAR) / TATA STEEL/ SURYA PRAKASH
2	GI Fittings	UNIK / ZOLOTO / SURYA/ KS
3	SS Pipes & fittings (316 Grade)	JSL LYFESTYLE / VIEGA / J-PRESS / AQUINOX INDIA
4	DWC HDPE Pipes	RELIANCE POLYMERS / PRINCE / SUPREME/ ASTRAL
5	DI Pipes	ELECTROSTEEL (VEDANTA) / JINDAL/ TATA DUCTURA
6	DI Fittings	ELECTROSTEEL (VEDANTA) / JINDAL/ TATA DUCTURA / KESORAM
7	CI Double flanged sluice valve	KIRLOSKAR /KARTAR/ZOLOTO /IVC /NVR

S. No.	Material	Preferred make
8	Float Valve	LEADER / ZOLOTO / KSB/IVC/ NRV /SANT
9	Hubless Centrifugally Cast (Spun) Iron Pipes & Fittings / Centrifugally Cast (Spun) Ductile Iron Pipes & Fittings	JAYASWAL NECO / SKF/RPMF
10	Centrifugally Cast (Spun) Iron (Class LA) Pipes	JAYSAWAL NECO / ELECTRO STEEL / TATA
11	Centrifugally Cast (Spun) Ductile Iron Pipes & Fittings	NECO /JINDAL (HISSAR) /KALINGA
12	G.I. Steel Door Frame	SYNERGY THRISLINGTON/ NAVAIR/ SHAKTI
13	CI Manhole covers, Frames & GI Gratings	JAYASWAL NECO / RIF / SKF/ RPMF / ELECTROSTEEL CASTINGS
14	SFRC Manhole Covers &Gratings	KK / OCR / PARGATI / T-CON/NECO /DUDHI
15	Stoneware Pipes and Gully Traps	PERFECT / PARRY / BURN / ANAND / RK / HIND
16	RCC Manhole covers & Frames	KK MANHOLE / GRATING CO. (P) LTD/DALAL TILES INDUSTRIES
17	Gun Metal Valves, Globes	ZOLOTO / CASTLE / KARTAR
18	CP Fittings &Fixtures	JAQUAR / HINDWARE / CERA / KOHLER/ GROHE
19	Sanitary Vitreous Chinaware	JAQUAR / HINDWARE / CERA / KOHLER/ GROHE
20	Toilet & Bathroom Accessories (towel ring, rod, toilet paper holder, soap dish, wash couplings, extension nipples, etc.)	JAQUAR / HINDWARE / CERA/ KOHLER/ GROHE/ JONHSON/EURONICS
21	Solar Water Heating System	HONEY WELL / THERMAX / RACOLD / KAMSTRUP
22	Smart Water Meter	KAMSTRUP / DIEHL / HONEYWELL / SCHNEIDER ELECTRIC SE
23	Brass Stop & Bib Cock	ZOLOTO / SANT / L&K / LEADER / ASTRAL
24	UPVC/ CPVC Pipe& Fittings	AKG / ASTRAL/ SUPREME / FINOLEX
25	Non-Return Valve (Check valve) and other kind of Valves	ZOLOTO / SANT / LEADER
26	Brass Ferrules	DHAWAN SANITARY UDYOG / KALSI / POINEER /STERLING
27	Insulation for hot water pipes	MARSHLAND/ARMAFLEX / CAREFLEX / LLOYD
28	Pipe protection for external water supply pipes	PYPKOTE / ARMAFLEX / MAKPOLYKOTE
29	Stainless Steel Sink	NEELKANTH / NIRALI / CERA / FRANKE FABRE /ALLEX
30	RCC Pipes	LAKSHMI / SOOD & SOOD / JAIN & CO./ INDIAN HUME PIPE
31	Dash/ Stud/ Anchor Fasteners	HILTI // BOSCH/ FISCHER
1.10	ACOUSTICS SYSTEM	
1	Acoustic High density glass wool ceiling tiles:	ECOTONE/ ECOPHON/ CREDENCE/ BSR CALSI/ KNAUF/ DURLUM/ HIMALAYAN ACCOUSTICS/ ANUTONE/ GYPTECH
2	Acoustic Micro Perforated Metal Ceiling tiles:	ECOTONE/ ECOPHON/ KNAUF/ CREDENCE/ BSR CALSI/ DURLUM/ BOLLARD

S. No.	Material	Preferred make
3	Acoustic treatment with wooden perforated panels (with Acoustical transparent black fabric):	ARMSTRONG/ECOTONE/ CREDENCE/ HIMALAYAN ACCOUSTICS/ KNAUF/ UNIDUS/ BOLLARD
4	Acoustic Polyester Compressed fabric wall panel with back treatment:	ECOTONE/ PRO ACOUSTIC SOLUTIONS/ ACOUSTICAL SOLUTIONS/ ACOUSTICS FIRST/ CREDENCE/ UNIDUS/ ANUTONE/ GYPTECH/ BOLLARD
5	Acoustic Door	TUFWUD/ SUKRITI/ NAVAIR/ SHAKTI HORMANN/
6	Heavy Carpet flooring with Acoustic underlay:	TARKETT/ WELSPUN/ MILLIKEN/ BLOOMBERG/ EGE/ SHAW/ INTERFACE/ ANUTONE/ GYPTECH
7	Stage Flooring:	SQUARE FOOT/ PRO ACOUSTIC SOLUTIONS/ ECOTONE SYSTEMS/ ACOUSTICAL SOLUTIONS/ EPITOME
8	Rain water Noise isolation treatment:	ECOTONE SYSTEMS/ PRO ACOUSTIC SOLUTIONS/ ACOUSTICAL SOLUTIONS INC./ ACOUSTICS FIRST
9	Floor Vibration/ Impact Isolation treatment:	ECOTONE SYSTEMS/ PRO ACOUSTIC SOLUTIONS/ ACOUSTICAL SOLUTIONS INC./ ACOUSTICS FIRST
1.11	MISCELLANEOUS	
1	Irrigation Equipment	JAIN IRRIGATION / KISAN / FINOLEX / PLASSON
2	SMC water tank	SINTEX / MAHINDRA / SPL /SUPREME /VECTUS
3	Modular Rainwater harvesting	RETAS WATER HARVESTING / ADWYNIMPEX PVT. LTD / LIFE GREEN SYSTEM / BANTAIR
4	Stainless Steel hardware, fittings &Accessories for Modular Kitchen and wardrobe	HETTICH / HAFELE / OZONE / GODREJ /DORSET
5	Automatic Meter Reading System (Ultrasonic) / Smart ultrasonic water meter	AVVA / DIEHL / BAYLAN / GLOBALM/ KAMSTRUP /HONEYWELL
6	Automatic Meter Reading System (Electromagnetic) / Electrical Digital Meter with LCD Display	SENSUS /HONEYWELL / ITRON /DIEHL/ KAMSTRUP
7	FRP Cover	R.X./ THERMODRAIN / FIBROCAST / DUDI/ CRECENT / VIKRANT FOUNDARY
8	Epoxy Flooring	MC BAUCHEMIE, KERAKOLL, MBT, MAPEI, FLOWCRETE, FOSROC

Note: -

- Material bearing ISI mark and having BIS certifications shall only be used in the work, where articles of different designs/makes bearing ISI/BIS certifications are available.
- Where material bearing ISI mark and having BIS certifications are not available, then material conforming to relevant BIS certifications shall be used only after with prior approval of Engineer-in-Charge. The decision of Engineer-in-Charge about the design/ make to be used in the work shall be final & binding on the agency.
- If the brand or specifications of any item is not available, then the decision of the Engineer-in-Charge regarding shall be final & binding on the agency.

PART-C

Financial Bid

Name of work: Construction of Super Specialty Block (3 Basements + Ground floor + 11 upper floors and Helipad on terrace floor) in RML Hospital Complex, New Delhi including Main building works, water supply, sanitary installation, internal electrical installations, lifts, firefighting system, automatic fire alarm system, air conditioning system, Advance Health care services, Development and Bulk Services and Horticulture works (**SH: Floor finishing of Stretcher Ramp**).

Schedule of Quantity (CIVIL)

S. No.	Description	Qty.	Unit	Rate	Amount
1	Surface preparation includes cleaning, mechanical grinding, vacuum cleaning/shot blasting. Remove all irregularities and cavities from the surface. All the cracks & undulations should be repaired with non-Shrink Epoxy Mortar. After repairing surface may require mild grinding to get uniform leveled finish. Final surface should be clean, dry, well leveled, free laitance, dust, dirt, oil, grease etc. All the construction joints must be inspected & should be treated with suitable method / material & should be tested for its water tightness. Concrete Floor to be treated should be thoroughly cured & should have minimum compressive strength of 20 N/mm ² & substrate pull off strength of 1.5 N/mm ² is required. Moisture Content of the floor should be less than 5 %.				
	Providing and applying a compatible, two-component epoxy primer over the prepared substrate. Part B shall always be added to Part A at a 1:1 ratio and thoroughly mixed for 2–3 minutes using an electric drill fitted with a mixing paddle to achieve a uniform color and consistency. The mixed primer shall be applied uniformly by brush, roller, or airless spray at a consumption rate of 200–250 g/m ² ."				
1.1	Surface preparation & Priming the surface	4431.00	sqm	423.59	1876927.00
2	Providing and applying a two-component epoxy base coat after the primer has fully cured. Part B shall be added into Part A and thoroughly mixed for 2–3 minutes using a mechanical drill fitted with a mixing paddle to achieve a uniform color and consistency. The mixed epoxy shall be applied by brush, roller, or airless spray at a consumption rate of 250–300 g/m ² to achieve a Dry Film Thickness (DFT) of 200–250 microns. The cured coating must exhibit a density of 1.5 g/cc, a minimum compressive strength of 55 N/mm ² , and a Shore D hardness of 75. It must				

S. No.	Description	Qty.	Unit	Rate	Amount
	provide excellent resistance to corrosion, high abrasion, diesel, oil, dilute acids, alkalis, and various organic solvents				
	Sprinkle Anti-Slip Aggregates 0.4 -0.7 mm uniformly on freshly applied Epoxy Coating within 5 minutes of its application. Ultimate care should be taken while sprinkling Anti-Slip Aggregates 0.4 -0.7 mm on the freshly applied to get desired well textured finish & thickness.				
	Providing and applying a final sealer coat of a two-component epoxy system over a well-cleaned, anti-slip aggregate (0.4–0.7 mm) surface. Part B shall be added to Part A and mixed thoroughly to a uniform consistency. The mixed epoxy shall be applied by brush, roller, or airless spray at a consumption rate of 250–300 g/m ² to achieve a Dry Film Thickness (DFT) of 200–250 microns. The cured sealer coat must exhibit a density of 1.5 g/cc, a minimum compressive strength of 55 N/mm ² , and a Shore D hardness of 75. The system must provide excellent resistance to corrosion, high abrasion, diesel, oil, dilute acids, alkalis, and numerous organic solvents."				
2.1	Base coat, Anti slip aggregate & final Sealer coat	4431.00	sqm	1,011.91	4483773.00
3.1	Providing and applying 75 mm × 75 mm yellow floor marking using two-component epoxy coating, including surface preparation by cleaning and removal of dust, grease and loose particles, masking with tape to obtain straight and neat edges, application of epoxy wherever required, and two coats of yellow two-component epoxy of approved make and shade, complete in all respects as per the Engineer-in-Charge.	100.00	metre	235.33	23533.00
Total					63,84,233.00