

CENTRAL PUBLIC WORKS DEPARTMENT**INDEX**

Name of work:-Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.

NIT No.: 10/SE/DC-7/CD-4/2026-27

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Certified that this NIT Contains **125 pages marked as 1 to 125 only.**

This NIT Approved for Rs.1,99,18,592/- (Rupees One Crore Ninety Nine Lakh Eighteen Thousand Five Hundred Ninety Two only)

-Sd-

AE (P)/ CD-4

-Sd-

EE (C)/CD-4

AE (C)/DC-7

Approved

**Superintending Engineer,
DC-7, CPWD, New Delhi**

CENTRAL PUBLIC WORKS DEPARTMENT
Notice Inviting e-Tenders

The Executive Engineer, (Telephone No. 011-25841056, E-mail ID – eecd4cpwd@gmail.com) CD-4, CPWD, Pusa, New Delhi invites on behalf of the President of India online percentage rate tenders from CPWD enlisted contractors of appropriate class for the following work:-

NIT No.: 10/SE/DC-7/CD-4/2026-27

Name of Work: - Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.

Estimated Cost : Rs. 1,99,18,592/-

Earnest money : Rs. 3,98,372/-

Period of completion : 06 (Six) Months

Last date and time of submission of bid 16.07.2026 at 05.00 P.M.

The bid forms and other details can be obtained from the website <https://etender.cpwd.gov.in/CPWD>. The Notice Inviting e-Tenders **is also available on** the website <https://etender.cpwd.gov.in/CPWD>.

Executive Engineer
CD-4, CPWD,
Pusa, New Delhi

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING

Forming part of bid document

The Executive Engineer, Construction Division-4, CPWD, Pusa, New Delhi (Telephone No. 011-25841056, E-mail ID – eecd4cpwd@gmail.com) invites on behalf of the President of India online percentage rate tenders from CPWD of appropriate class for the following work:-

Sl. No.	NIT No.	Name of Work & location	Estimated cost put to bid Rs.	Earnest Money	Stipulated Period of Completion of work	Last date & time of online submission of bid, copy of receipt of deposition of original EMD and other Documents as specified in the bid documents	Date & Time of opening of bid
1	NIT No. -10/SE/DC-7/CD-4/2026-27	Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.	Rs. 1,99,18,592/-	Rs. 3,98,372/-	06 (Six) Months	Up to 16.07.2026 at 5:00 PM	16.07.2026 at 5:30 PM

1. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
2. Information and Instructions for bidders posted on web site shall form bid document.
3. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website <https://etender.cpwd.gov.in/CPWD> or www.cpwd.gov.in free of cost.
4. Those contractors not registered on the website mentioned above, are required to get registered beforehand.
5. The intending bidder must have valid contractor registration and digital signature to submit the bid.
6. On opening date, the contractor can login and see the bid opening process after opening of bids. He can receive the competitor bid sheets.
7. Contractor can upload documents in the form of JPG format and PDF format.

8. Contractor must ensure to quote percentage rate of civil & electrical component as given in template. 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 tenderer quote new rates against each item in item rate tender or does not could any percentage above or below on the total amount of the tender or any section / sub head in percentage tender, the tender shall be treated as invalid and not consider lowest tender.
9. Contractor should quote the percentage above or below to two places of decimal only.
10. The officer inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.
11. The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and Construction of the works.
12. The intending bidder is suggested to and inspect the site and inventory of each installation and ensure uninterrupted and smooth functioning of each installation and also to ascertain the resources required to meet the obligations of bench mark mentioned in this NIT, no claim in this regard shall be entertained by CPWD at any stage.
13. If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.
14. Any error in description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.
15. Any query/clarification shall be entertained on Email: eecd4cpwd@gmail.com by **11:00 AM on 15.07.2026.**
16. 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 work in CPWD. The department reserves the right to verify the particulars furnished by the applicant independently.
17. All cess /duties/taxes as applicable on the date of receipt of tender shall be borne by the contractor. The contractor shall quote his rate considering all such cess/duties/taxes. Contractor must have GST registration for becoming eligible to participate in tender.
18. The bidders who propose any alteration in the work specified in the said form of invitation to tender,

or in the time allowed for carrying out the work, which contain any other conditions of any sort including conditional rebate will be summarily rejected.

19. The tenderer should read all the instructions, terms & conditions, contract clauses, nomenclature of items, specifications etc. contained in the tender document very carefully, before quoting the rates.
20. The tenderer should also read the **General condition of contract for Maintenance Works 2023 (Amended up to date of receipt of tender)** published by the DG(W) CPWD, Vidyut Bhawan, New Delhi which will be part of the agreement with up to date of amendments i.e. up to date of receipt of tender.
21. The contractor shall quote his rates keeping in mind the specifications, terms & conditions, additional and special conditions etc. and nothing shall be payable extra whatsoever unless otherwise specified.
22. The contractor has to follow standard operating processor and guidelines for construction & Construction site for covid-19 outbreak issued vide OM No.2/9/2020-WII/DG/169 dated 05.05.2020 available on CPWD website along with all existing guidelines. It will also form as a part of the agreement.
23. It is mandatory to fill details / upload scanned copies of all the documents as stipulated in the bid document. If such a document is not uploaded his bid will become invalid and processing fee shall not be refunded.
24. If the Contractor is found ineligible after opening of bids, his bid shall become invalid.
25. 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 Contractor, the bid shall become invalid.
26. The intending bidder is suggested to visit and inspect the site and inventory of each installation and ensure uninterrupted and smooth functioning of each installation and also to ascertain the resources required to meet the obligations of bench mark mentioned in this NIT, no claim in this regard shall be entertained by CPWD at any stage.

Executive Engineer,
CD-4, CPWD,
Pusa New Delhi

LIST OF MANDATORY DOCUMENTS TO BE SCANNED AND UPLOADED WITHIN THE PERIOD OF BID SUBMISSION

1. Earnest Money in the form of Treasury Challan or Demand Draft or Pay Order or Banker's Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of Executive Engineer, CD-IV, CPWD, Pusa, New Delhi 110012) shall be scanned and uploaded to the e-Tendering website within the period of bid submission. EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid/tender. EMD made/ issued from the account other than that of the bidder/ tenderer submitting the bid, shall not be accepted. 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 document shall only be issued from the place in which the office of receiving division is situated). The EMD receiving Executive Engineer 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. This receipt shall also be uploaded to the e-tendering website by the intending bidder upto the specified bid submission date and time.
Earnest money is valid for a period of 90 Days for single bid and 180 Days for two bid system or more from the date of submission of the tender.
2. Enlistment Order of the Contractor
3. GST Registration Certificate of the State in which the work is to be taken up, if already obtained by the bidder. If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities then in such a case the bidder shall scan and upload following under taking along with other bid documents.
"If work is awarded to me, I/We shall obtain GST registration Certificate on the State, in which work is to be taken up, 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.
4. Detail Of Agency – Form –B
5. Copy of Pan Card
6. Upload ERP Training Certificate
7. An undertaking on letter head shall be submitted that "I/We have not been black listed / debarred / suspended for tendering in CPWD till the last date of submission of bid".
8. The contractor should submit the ESIC & EPF Registration Certificate or an Undertaking that, "I will submit ESIC & EPF Registration Certificate within 30 Days of award of the work."
9. An undertaking that "I/We shall record all measurements and levels of work and all other documentation required for EMB in the shape of electronic measurement book through CPWD ERP module."
10. An undertaking that "I/We have read and understood the OM No. DG/Manual-2024/20 Vidyut Bhawan, New Delhi Dated: 27.02.2026 in Schedule A to F, including the provisions of Performance Guarantee/& Additional Performance Guarantee, and I have quoted my rates accordingly. I agree to submit the required Performance Guarantee/& Additional Performance Guarantee as per NIT conditions".
11. The agency shall not quote the below rates of credit of dismantled items. For this he has to upload the undertaking that "I did not quoted the rates of dismantling below the Schedule price of Rs -7800/- as per Schedule page no. 124". Any agency who does not upload this undertaking his tender shall not be opened

Executive Engineer
CD-4, CPWD,
Pusa, New Delhi

RECEIPT OF DEPOSITION OF ORIGINAL EMD

Receipt of deposition of original EMD (Receipt No..... Date.....)		
To safeguard against a bidder withdrawing or altering his/her bid during the bid validity period, earnest money shall be obtained from the bidders for all tenders unless otherwise mentioned in the tender documents. EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid/tender. EMD made/ issued from the account other than that of the bidder/ tenderer submitting the bid, shall not be accepted.		
1.	Name of Work	Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.
2.	NIT No.	10/SE/DC-7/CD-4/2026-27
3.	Estimated Cost	Rs. 1,99,18,592/-
4.	Amount of Earnest Money Deposit	Rs.3,98,372/- (to be refunded after receiving the Performance Guarantee/ Additional Performance Guarantee)
5.	Last date of submission of bid	16.07.2026 at 5:00 PM
6.	Name of Contractor	
7.	Form of EMD	
8.	Amount of Earnest Money Deposited	
9.	Date of submission of EMD	
10.	Signature of EMD receiving Officer: Name and Designation of EMD receiving Officer: Office Stamp:	

Office Stamp:

Signature(s) of Bidder(s)

BIDDER INFORMATION FORM

1	Name of the agency	:	
2	Correspondence address	:	
3	Name of the authorized person of the agency	;	
4	Official contact number on which contractor is available for the department	:	
5	Official e-mail for correspondence	:	

Contractor

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT
NOTICE INVITING TENDER**

Percentage Rate bids are invited by Executive Engineer, CD-4, CPWD, New Delhi (Telephone No. 011-25841056, E-mail ID – eecd4cpwd@gmail.com) on behalf of President of India from approved and eligible enlisted contractors of CPWD in appropriate category of Buildings & Roads (erstwhile /Building/ Infrastructure) for the work of **Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.**

The enlistment of the contractors should be valid on the last date of submission of tenders. In case the last date of submission of tenders is extended, the enlistment of contractor should be valid on the original date of submission of tenders.

1. The estimated cost of work is **Rs. 1,99,18,592/-** This estimate, however, is given merely as a rough guide.
 - 1.1 Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD 7 (or other standard form as mentioned) which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
2. The time allowed for carrying out the work will be **06 (Six) Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
3. The site for the work is available and same shall be handed over to the agency in **phased manner as specified in the Schedule F.**
4. The architectural and structural drawings shall be made available in phased manner, as per requirement of the same and as per approved programme of completion submitted by the contractor after award of work and the bid document consisting of specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website <https://etender.cpwd.gov.in> free of cost.
5. After submission of the bid the contractor can re-submit/revise the bid any number of times but before last time and date of submission of bid as notified.
6. 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.
7. **EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid/tender. EMD made/ issued from the account other than that of the bidder/ tenderer submitting the bid, shall not be accepted.** Earnest Money in the form of insurance surety bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Bankers cheque or Bank Guarantee (for balance amount as prescribed) from any of the commercial bank (**drawn in favour of Executive Engineer, Construction Division-4, CPWD, New Delhi**) shall be scanned and uploaded to 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.

8. The earnest money given by the tenders 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 ever in earlier.
9. Copy of Enlistment Order and other documents as specified in the press notice 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 press notice shall have to be submitted by the lowest bidder along with physical EMD of the scanned copy of EMD uploaded **within a week physically** in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division office of CPWD and other documents scanned and uploaded are found in order.
10. **Only e-bids shall be accepted.** Agencies willing to participate in this bidding process, if not already registered, should get themselves registered before hand with **M/s ITI Limited** through their e-gateway by credit/debit card or internet banking or RTGS/NEFT facility.
11. **The bid can only be submitted** after depositing e-tender Processing Fee as applicable in favor of ITI Limited through their e-gateway by credit/debit card, internet banking or RTGS/NEFT facility.
 - 11(A) The contractors registered prior to 01.04.2015 on e-tendering portal of CPWD shall have to deposit tender processing fee at existing rates, or they have option to switch over to the new registration system without tender processing fee any time.
 - 11(B) Any query/clarification is welcome on email: eecd4cpwd@gmail.com upto **11:00 AM on 15.07.2026.**
12. The bid submitted shall become invalid and e-Tender processing fee (if applicable) shall not be refunded if:
 - (i) The bidder is found ineligible.
 - (ii) The bidder does not upload scanned copies of all the documents stipulated in the bid document.
 - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.
 - (iv) If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
13. The bidder whose bid is finally accepted will be required to furnish performance guarantee (PG) shall be **5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher (O.M. No. DG/Manual-2024/20 Vidyut Bhawan, New Delhi Dated: 27.02.2026)** as mentioned in schedule F and within the period specified in schedule F.
 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 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 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). 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.

This Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) shall be in the form of insurance surety bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's cheque or Bank Guarantee (for balance amount as prescribed) from any of the commercial bank in accordance with the prescribed form.

In case, the Bidder fails to deposit the said Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) within the period as indicated in Schedule- 'F' including the extended period if any, the bidder agrees that the President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to suspend the bidder for one year and shall not be eligible to bid for CPWD tenders from date of issue of suspension order.

The Bidder whose bid is accepted will also be required to furnish either copy of applicable licenses /registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC, and BOCW Welfare Board including Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the sub-agencies, if any, engaged by the Bidder for the said work within the period specified in Schedule-F.

14. The description of the work is as follows:

The said work comprises of **Name of work:- Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.** along with other miscellaneous works as per schedule of quantity and mentioned in the brief scope of work.

Brief scope of work :-

The work is of Name of work:- Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi. (Please refer Civil BOQ)

15. 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.

16. 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.
17. 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.
18. 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.
19. 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.
20. The contractor shall not be permitted to bid for works in the CPWD Zone (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of ADG(RD), CPWD and Engineer-in-charge (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 Gazette officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
21. No Engineer of Gazette Rank or other Gazette 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.
22. The bid for the works shall remain open for acceptance for a period of **Thirty (30) days from the date of opening of bids.**
 - I. If any tenderer withdraws his tenders or makes any modifications in the terms and conditions of the tender which is not acceptable to the department within 7 days after opening of tender (excluding date

of opening of tender) then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely.

II. After 7 days of opening of tender the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely.

III. The bidders shall not be allowed to participate in the rebidding process of the work.

23. This notice inviting Bid shall form a part of the contract document. The successful bidders/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of: -

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

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

24. After acceptance of the bid by Competent Authority, the EE in charge of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the Contractor will have to enter into agreement with EE in charge of the work.

25. For Bids

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

25.2 The bid document will include following three components:

Part A:- CPWD-6, CPWD-7 including schedule A to F for the major and minor component of the work, (SE/EE in charge of major component shall also be competent authority under clause 2 and clause 5 as mentioned in schedule A to F for minor components), Standard General Conditions of Contract for CPWD 2023 (Maintenance Work) as amended/modified up to last date of receipt of tender.

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

25.4 The eligible bidders shall quote rates for all items of major of work.

25.5 After acceptance of the bid by competent authority, the EE in charge of 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 and has also to sign two copies.

25.6 Entire work under the scope of bid including shall be executed under one agreement.

~~25.7 Security Deposit will be worked out separately for each component corresponding to the tendered cost of the respective component of works.~~

~~25.8 The main contractor has to associate agency(s) for minor 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 minor component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer in charge of minor component(s).~~

~~25.9 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 minor 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.

~~25.10 The main contractor has to enter into agreement with contractor(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to EE/ DDH in charge of each minor 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 agreement with the new contractor associated by him.~~

~~25.11 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.~~

~~25.12. The work shall be treated as complete when all the components of the work are complete. The completion certificate of the work shall be recorded by Engineer in charge of major component after record of completion certificate of all other components. (Added vide OM-DG/MAN/270 dt. 01.05.2013)~~

~~25.13. 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 contract~~

25.14. The intending bidders are requested to update their profile in CPWD e-tendering portal and to upload their bids well in advance of last date of submission of tender. Any issues related to updating profile/uploading tender can be resolved through the concerned Executive Engineer/Assistant Engineer (Phone no. 011-25841056, e-mail Id eeecd4cpwd@gmail.com) or ERP help line 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.

25.15. The contractor has to follow standard operating processor and guidelines for construction & Construction site for covid-19 outbreak issued vide OM No. 2/9/2020-WII/DG/169 dated 05.05.2020 available on CPWD website along with all existing guidelines. It will also form as a part of the agreement.

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

25.17 Conceptual and indicative drawings, plans & elevations of this work are available in the O/o EE, CD-4, Pusa, New Delhi. Intending bidders are advised to evaluate the same before submission of bid. However, department reserves the right to change the drawings, if required, and any claim shall not be entertained on account of change in the conceptual / indicative plans.

25.18 The contractor is bound to oblige the Govt. ruling on account of suspension of work for some period due to guidelines issued by **NGT/Pollution Control Board**. No claim from contractor in terms of financial damages shall be entertained by department on account of this suspension / ban due to NGT guidelines.

25 The bidder whose bid is finally accepted will be required to furnish performance guarantee (PG) shall be **5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher (O.M. No. DG/Manual-2024/20 Vidyut Bhawan, New Delhi Dated: 27.02.2026)** as mentioned in schedule F and within the period specified in schedule F.

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 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 ECPT and quoted amount. (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be $0.8A - 0.7A$). 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.

This Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) shall be in the form of insurance surety bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's cheque or Bank Guarantee (for balance amount as prescribed) from any of the commercial bank in accordance with the prescribed form.

This Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) shall be in the form of cash (in case Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) amount is less than Rs. 10000/-) 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 Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) 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 prescribed form. In case the contractor fails to deposit the said Performance Guarantee (PG)/ Additional Performance Guarantee (APG) 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 contractor whose bid is accepted will also be required to furnish either copy of applicable licenses / registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board i/c provident fund code No. if applicable and also ensure the compliance of aforesaid provisions by the sub-contractors, if any engaged by the contractor for the said work (MAN 342) and Programme chart (Time and progress) within the period specified Schedule F.**

25.17 Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD-7 amended up to date which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in (Edition 2023). Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

Executive Engineer,
CD-4, CPWD, New Delhi.

	CPWD-7
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**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

**STATE: DELHI
BRANCH: B&R**

**DIVISION: CD-4
CIRCLE: DC-7
Sub-Region: ADG (Delhi)**

Percentage Rate Tender & Contract for Work

Percentage Rate Tender & Contract for Work of **Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.**

To be submitted/uploaded online at <https://etender.cpwd.gov.in> /cpwd by **5:00 PM on 16.07.2026.**

- (i) To be opened online in presence of tenderers who may be present at **5:30 PM on 16.07.2026** in the office of **Executive Engineer, CD-4, CPWD, Pusa, New Delhi.**

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, **GCC 2023 (Maintenance Work)** (as amended up to last date of submission of bid), 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 respects with the specifications, designs, drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by and in respects in accordance with, such conditions so far as applicable.

We agree to keep the tender open for **Thirty (30) days** from the due date of opening of bid and not to make any modifications in its term & conditions.

A sum of Rs. **3,98,372/-** as EMD of the scanned copy of EMD uploaded shall be deposited (by the lowest tenderer) within a week after opening of tender. **EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid/tender. EMD made/ issued from the account other than that of the bidder/ tenderer submitting the bid, shall not be accepted.** 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 commence work as specified, I/We agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the Performance Guarantee (PG)/ and Additional Performance

Guarantee (APG) absolutely. The said Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) 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 in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of earnest money or Performance Guarantee (PG)/ and Additional Performance Guarantee (APG) as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/We shall be debarred for tendering in CPWD in future for ever. 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 cancel the agreement and to forfeit the entire amount of Earnest Money Deposit/ Performance Guarantee (PG)/ and Additional Performance Guarantee (APG)

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

Dated: #.....

Signature of Contractor #

Witness: #

Postal Address #

Address: #

Occupation: #

To be filled in by the contractor

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for an 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*

Dated:*

Designation

.....*

***To be filled in by the Engineer-in-charge**

On Non-Judicial Stamp Paper of Minimum Rs. 100/-

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

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

1. Whereas the Executive Engineer, CD-4, CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number with (name and address of the contractor) (hereinafter called "the Contractor") for execution of work (name of work) The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. (Rupees only) valid upto (date)..... as **Performance Guarantee/and Additional Performance Guarantee /Security Deposit/Mobilization Advance** from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.
2. We,(indicate the name of the bank) (Herein after referred to as "the Bank"), hereby undertake to pay to the Government an amount not exceeding Rs. (Rupees only) on demand by the Government within 10 days of the demand.
3. We, (indicate the name of the Bank), do hereby undertake to pay the 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 the Bank), further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
5. We, (indicate the name of the Bank), further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation 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 from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. We, (indicate the name of the Bank), further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.

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

8. We, (indicate the name of the Bank), undertake not to revoke this guarantee except with the consent of the Government in writing.

9. This Bank Guarantee shall be valid up to unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to 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

Witness:

1. Signature
Name and address

Authorized signatory
Name

Designation
Staff code no.
Bank seal

2. Signature
Name and address

* Date to be worked out on the basis of validity period of **90 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 either for earnest money or for **Performance Guarantee/ and Additional Performance Guarantee /security Deposit/Mobilization Advance, as the case may be.

PROFORMA OF SCHEDULES
(Applicable for Civil Work)

SCHEDULE 'A'			
Schedule of quantities	Civil	:	Attached

SCHEDULE 'D'	
Extra schedule for specific requirements/documents for the work, if any:	NIL

SCHEDULE 'E'			
Reference to General Conditions of contract: -		General Conditions of Contract (GCC)– Maintenance Work -2023 modified and corrected upto previous day of the last date of submission of tender.	
Name of Work: -		Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.	
Estimated cost of work: -		Civil	: Rs.1,99,18,592/-
		Total	: Rs.1,99,18,592/-
(i)	Earnest money: (To be returned after receiving performance guarantee)	:	Rs. 3,98,372/-
(ii) (a)	Performance Guarantee: -	5% of the Estimated cost put to tender (ECPT) or contract amount whichever is higher (O.M. No. DG/Manual-2024/20 Vidyut Bhawan, New Delhi Dated: 27.02.2026). Performance Guarantee shall remain valid for a minimum period of six months beyond the date of completion of all contractual obligations as per GCC.	
(b)	Additional Performance Guarantee: -	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 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 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). 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.	
(iii)	Security Deposit: -	2.5% of tendered Value.	

SCHEDULE 'F'					
General Rules & Directions: -					
Officer inviting tender: -			Executive Engineer, CD-4, Pusa, CPWD, New Delhi.		
Definitions:					
2 (vi)	Engineer-in-Charge	(i)	Civil work	Executive Engineer, CD-4, CPWD, New Delhi or his successor	
2 (viii)	Accepting Authority	Superintending Engineer, DC-7, CPWD, IARI Pusa, New Delhi or his successor			
2 (x)	Percentage on cost of materials and labour to cover all overheads and profits.	15%			
2 (x) (b)	Standard schedule of Rates	Civil	Delhi Schedule of Rates-2023 with up-to - date correction slips amended/ modified up to last date receipt of tender i/c extension, if any		
2 (xi)	Department	Central Public Works Department			
9 (ii)a	Standard CPWD contract form	General Conditions of Contract (GCC)– Maintenance Work -2023 modified and corrected upto previous day of the last date of submission of tender.			

Clause 1	
(i) Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW: Welfare Board or proof of applying thereof from the date of issue of letter of acceptance, in days.	7 days
(ii) Maximum allowable extension with late fee @ 0.1% per day of performance guarantee amount beyond the period as provided in (i) above.	3 days

Clause 2	
Authority for fixing compensation under clause 2.	Superintending Engineer, DC-7, CPWD, IARI Pusa, New Delhi or his successor.

Clause 2A	
Whether Clause 2A shall be applicable	No

Clause 5

Number of days from the date of issue of letter of acceptance for reckoning date of start	10 days
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Milestone(s) as per table given below:-

S. No	Description of Milestone (Financial)	Time Allowed in days (from date of start)	Amount to be withheld in case of non-achievement of Milestone
1.	1/8 th (of whole work)	1/4 of stipulated period	In the event of not achieving the necessary progress as assessed from the running payment, 1.25 % of the tendered value of work will be withheld for failure of each milestone.
2.	3/8 th (of whole work)	1/2 of stipulated period	
3.	3/4 th (of whole work).	3/4 of stipulated period	
4.	Complete work.	Stipulated period	

Time allowed for execution of work	03 (Three) Months
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Authority to decide:			
(i)	Authority to convey the decision of shifting of milestone and extension of time	Executive Engineer, CD-4, Pusa, New Delhi	
(ii)	Authority to decide rescheduling of milestone and extension of time	Superintending Engineer, DC-7, CPWD, New Delhi or his successor	
(iii)	Shifting of date of start in case of delay in handing over of site	Superintending Engineer, DC-7, CPWD, New Delhi or his successor.	
Schedule of handing over of site			
Part	Portion of site	Description	Time Period for handing over reckoned from date of issue of letter of intent
Part A	Portion without any hindrance	50 %	10 days
Part B	Portions with encumbrances	50 %	After completion of already handed over site under Part A.
Part C	Portions dependent on work of other agencies	-	-

Clause 5A	
Whether Clause 5A shall be applicable	No
Clause 6	
(Whether Clause 6 shall be applicable Electronic Measurement Book (EMB) through CPWD ERP portal	Yes, Electronic Measurement Book (EMB) through CPWD ERP portal as per CPWD OFFICE MEMORANDEM NO. DG/CON-Maintenance- 2020/338, dated 13/04/2023) instructions and details.

Clause 7	
Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	Rs. 33.00 Lakhs (Civil) Or Mutually Agreed by Engineer-in- charge and Agency
Clause 7A	
Whether Clause 7A shall be applicable	Yes
Clause 10A	
List of testing equipment to be provided by the contractor at site lab.	As per requirement of site and direction of Engineer-in-charge.

Clause 10B(i)	
Whether Clause 10B(i) shall be applicable	Not Applicable

Clause 10C **Applicable**

Component of labour expressed as percent of value of work (Civil Work)	25 %
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Clause 10 CC Clause 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in the next column. Applicable/Not applicable	:	<u>Not Applicable</u>
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Clause 11	
Specifications to be followed for execution of work	
1. Civil Works:	CPWD Specifications for works-2019 Vol I & II with up-to-date correction slips (for civil and Horticulture works).

Clause- 12

Type of work:	Maintenance Work
22. As per modification in condition of contract in clause -12 maintenance works (vide no. DG/CON/Maintenance/2023/03 dated 18/12/2023. The completion cost shall in no case exceed 1.5 times the contract amount. Deviation upto 1.25 times of contract amount shall be approved by Engineer-in-charge with recorded reasons. (ii) Deviation beyond 1.25 times upto 1.50 times of contract amount shall be approved by SE/CE (as applicable) with recorded reasons (as per vide no. DG/SOP-2022/24 dated 18.12.2023). (iii) The completion cost shall, in no case, exceed 1.5 times the contract amount. Contractor will devise a system to keep a watch on quantum of work taken up I balance items required to complete defined scope of work and will give the alerts to Engineer-in-Charge before taking up extra item(s), deviation(s)	

so -that completion cost does not exceed above limit. Work executed beyond above limit will neither be recorded nor be paid.

Engineer-in-Charge will verify and confirm the alerts before assigning deviation(s) and / or extra item(s) to the contractor. If additional work(s) is required to complete defined scope of work beyond above limit then Engineer-in Charge may take up such work(s) separately. The contractor will not have any claim(s) whatsoever on this account.

Clause 12.2	AS per DG/CON/Maintenance/2023/03 dated 18/12/2023.
Clause 12.3	No Limit AS per DG/CON/Maintenance/2023/03 dated 18/12/2023.

Clause 16 Competent Authority for deciding reduced rates. (Shall be limited up 5% of the Contract Value.)	Superintending Engineer, DC-7, CPWD, IARI Pusa, New Delhi or his successor
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Clause 18		
List of mandatory machinery, tools & plants to be deployed by the contractor at site	:	Civil work: mandatory machinery, tools and plants to be deployed by the contractor at site as per schedule of quantities and as per direction of engineer-in-charge.

Clause 19C		
Authority to decide penalty for each default	Civil	Engineer-in-Charge

Clause 19D		
Authority to decide penalty for each default	Civil	Engineer-in-Charge

Clause 19G		
Authority to decide penalty for each default	Civil	Engineer-in-Charge

Clause 19K		
Authority to decide penalty for each default	Civil	Engineer-in-Charge

Clause 25: Settlement of Dispute by Conciliation and Arbitration.

Sl. No.		
(i)	Conciliator	ADG (DELHI), Vidyut Bhawan, New Delhi
(ii)	Arbitrator Appointing Authority	SE, DC-7, CPWD, New Delhi
(iii)	Place of Arbitration	New Delhi

Clause 32 : Requirement of Technical Representative(s) and recovery Rate.

Sl. No.	Minimum qualification of Technical Representative	Discipline	Designation (Principal Technical /Technical Representative	Minimum Experience	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32(i) (Rs per month per person)	
					Figures	words
1	Graduate Engineer or Diploma Engineer	1+1	Project Manager cum planning quality/site/billing Engineer	2 or 5 respectively	15,000/-	Rupees Fifteen Thousand only

Note:

- Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.
- Diploma holder with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

CLAUSE 38

(i)	(a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates	Civil:- DSR 2023 with up to date correction slips up to last date of submission of tender
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Executive Engineer
CD-4, CPWD
Pusa, New Delhi

GENERAL CONDITIONS

1. The order of preference in case of any discrepancy as indicated in condition no. 8.1 under “Conditions of Contract” given in the General Conditions of contract for Central P.W.D works 2023 with up to date of submission of tenders.
Any references made to any Indian standards 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 standards applicable to the work at site. In case of above mentioned scenario silent the decision of Engineer-in-charge shall be final.
2. The work shall be carried out according to CPWD specifications 2019 Volume I & II, modified and corrected up to date of submission of bid. For the items which are not covered under CPWD specifications, the special conditions / B.I.S. specifications shall apply. In this regard the decision of Engineer-in-charge shall be final.
3. Unless otherwise specified, the agreement rates for all items of work of the schedule of quantities are for all heights, depths, leads and lifts involved in the execution of work.
4. The contractor shall make his own arrangement of water required for the work as per clause 31 of the general conditions of the contract for CPWD works and clause 31A of the said conditions stands deleted. However, 1% (one percent) water charges shall be recovered on the gross amount of bill from the contractor, if government water is used.
5. The contractor shall make his own arrangements for obtaining electric connection for carrying out any Construction activity and make necessary payment directly to the department concerned. In the absence of electric connection or failure of power supply, the contractor shall make his own arrangement of generators.
6. On account of security consideration, there could be some restrictions on the working hours, movement of vehicles for transportation of materials. The contractor shall be bound to follow all such restrictions and adjust the programme for execution accordingly.
7. The work shall be carried out in a manner complying in all respects with the requirements of relevant bye laws of the local bodies, labour laws, minimum wages act, workmen compensation act and other statutory laws enacted by Central Government as well as State Government.
8. All the melba or rubbish obtained from dismantling or otherwise during the execution of the work shall be brought down in packed bags or similar means through the staircase and is not to be thrown to the ground directly from the first floor or second floor etc. This shall be transported and stacked properly in the specified collection point designated by field staff by cycle rickshaw or any other similar means on the

same day and the site shall be kept clean including the stair case etc. as per the instructions of the Engineer-in-charge. Nothing extra shall be paid on this account. A fine of Rs.500/- shall be recovered from the contractor for each complaint/default of such cases.

9. No Residential accommodation shall be provided to any of the staff engaged by the contractor. The contractor shall also not be allowed to erect any temporary set up for staff in the campus.
10. No claims of the labours shall be entertained by the Department including that of providing employment, regularization of services etc.
11. The engineers who are present at the site from 9:00 AM to 5:00 PM on all working days or as working hours allowed by Engineer-in-Charge shall carry mobile telephone(s) to enable the Engineer-in-charge to have easy and quick communication. Nothing extra shall be paid to the contractor on this account and his quoted rates for various items under this contract will be inclusive of this obligation.

Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items in the schedule of quantities, the work shall generally be carried out in accordance with the "CPWD Specifications 2019 Vol. I & II" with up-to-date correction slips and manufacture specification additional / Particular Specifications, Architectural / structural drawings and as per instructions of Engineer-in-Charge.

The several documents forming the tender are to be taken as mutually complementary to one another. Detailed drawings shall be followed in preference to small scale drawings and figured dimensions in preference to scaled dimensions.

Should there be any difference or discrepancy between the description of items as given in the schedule of quantities, particular specifications for individual items of work (including special conditions) and I.S. Codes etc., the following order of preference shall be observed:

- (i) Description of Schedule of Quantities
- (ii) Particular Specifications and Special Conditions, if any.
- (iii) Drawings
- (iv) CPWD Specifications.
- (v) Indian Standard Specifications of B.I.S or International standard.(In case of non availability of B.I.S Code)
- (vi) Manufacturers' specifications & as decided by Engineer-in-charge.

"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 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/Schedule of Quantities/Specifications etc. being used in the agreement".

The works to be governed by this contract shall cover delivery and transportation up to destination, safe custody at site, insurance, erection, testing and commissioning of the entire works.

The works to be undertaken by the contractor shall interalia include the following:

- i. Preparation of detailed SHOP drawings and as BUILT drawings wherever applicable.
- ii. Obtaining of Statutory permissions where-ever applicable and required.
- iii. Pre-commissioning tests as per relevant standard specifications, code of practice, Acts and Rules wherever required.
- iv. Warranty obligation for the equipment's and/or fittings/fixtures supplied by the contractor.

Contractor shall provide all the shop drawings or layout drawings for all the coordinated services before starting any work or placing any order for 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. The contractor shall submit material submittals along with material sample for approval of Engineer-in-charge prior to delivery of material at site.

12. Any reference made to any Indian Standard Specifications, 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 including relevant Indian Standard Codes applicable to the work at site.
13. Replaced materials used shall have same or richer specifications to the original materials and compatible to the work.
14. The staff employed by the contractor should be well behaved, Polite & courteous. Any complaint against staff on behavior should be taken very seriously and such should be removed by the contractor immediately from the site.
15. The contractor shall make all safety arrangement required for the labour engaged by him at his own cost. All consequences due to negligence or due to lapse of security/safety or otherwise shall remain with the contractor. The department shall not be responsible for any mishap, injury, accident or death of the contractor's staff. No claim in this regard shall be entertained /accepted by the department.
16. Contractor shall be fully responsible for any damages caused to govt. Property or allottee's property by his labour / staff in carrying out the work and shall be rectified by the contractor at his own cost.
17. GST / Income Tax/ Construction Workers Welfare Cess/Other Taxes as applicable shall be recovered from the contractor's bill.
18. Chases, holes & drilling works etc. shall be done using power operated tools.
19. Dismantling of cement concrete slabs, floors etc. inside the building shall be done with the help of mechanized vibratory hammer, drills etc. The work shall be carried out in such a way that there should be least disturbance to the nearby/ adjoining allottees /occupants. The work should be completed within least possible time. The contractor must ensure that there should be no damaged to the supporting RCC/structural member of the buildings.

20. For non-compliance or partial compliance of satisfactory execution of items, the Engineer-in-charge reserves his rights to levy compensation in accordance with the scale of non-conformity and the period for which this non-conformity continues. However the total amount of this compensation for the whole contract shall not exceed 10% of the tendered value of this contract. This shall be without prejudice to other remedies available to Engineer-in-charge under this contract to take action against the contractor.
21. The contractors are advised to get acquainted with the proposed work and its site and also study the Architectural Drawings, specifications and special conditions carefully before tendering. No claim of any sort shall be entertained on account of any site conditions and ignorance of specifications and special conditions.
22. The work shall be carried out as per CPWD specifications for works-2019 Vol. I & II with up to date correction slips unless otherwise specified in the nomenclature of individual item or in the specifications and special conditions, where specifications are silent, the decision of Engineer-in-Charge shall be final and binding on contractors.
23. The rates quoted by the contractor shall be taken as net and nothing extra shall be paid on any account i.e. royalty, cartage, sales tax and stacking at required places etc. Centering, shuttering, however if required to be done for RCC beams, RCC floor slab and landings only for centering ceiling heights greater than 3.5m shall be measured & paid separately.
24. Articles manufactured by the reputed firms and approved by Engineer-in-Charge shall only be used. Only articles classified, as 'first quality' by the manufacturer shall be used unless otherwise specified. In case articles bearing ISI certification are not available in the market, quality of samples brought by the contractor shall be judged by standards laid down in the relevant CPWD specifications. For the items not covered by CPWD specifications relevant BIS standards shall apply. The sample of materials to be brought to site for use in work shall be got approved from the Engineer-in-Charge before actual execution of work.
25. The contractor shall submit a detailed programme of work within 15 days of the date of issue of letter of intent. Detailed programme should include all the mile stone, cash flow, material procurement, manpower deployment. Program must show clearly the critical path to complete the project in time.
26. The Engineer-in-Charge can modify the programme and the contractor shall have to work accordingly. During review of work progress, Engineer in Charge can ask to modify the programme. Contractor shall resubmit the modified programme in 5 days.
27. The quantities of each item shall not be exceeded beyond the agreement quantities without prior permission of Engineer-in-Charge.
28. All types of mortars to be used in the work shall be mixed in the mechanical mixer and hand mixing shall not be permitted.
29. The contractor shall make his own arrangement for getting the permission to ply the trucks from the traffic police.

30. No payment shall be made to the contractor for any damage caused by rain, snow fall, floods or any other natural causes whatsoever during the execution of work. The damage caused to work shall have to be made good by the contractor at his own cost and no claim on this account shall be entertained.
31. Other agencies may also simultaneously be executing the work of electrification, Horticulture or external services and other building works for the same building along with this work. The contractor shall offer necessary facilities for the same and no claim in the matter shall be entertained. The contractor shall especially co-ordinate with the other agency carrying out his work.
32. The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of the work by storing materials on the road.
33. The contractor shall be fully responsible for the safe custody of the material issued or brought by him to site for doing the work
34. Testing of materials : In case there is any discrepancy in the frequency of testing as given in the list of mandatory test and that in the individual sub-head of work as per the CPWD specifications for works-2019 Vol-I & II with up to date correction slips, the higher of the two frequencies shall be followed and nothing extra shall be payable to the contractor on this account.
35. Samples of all fittings and fixture to be provided shall be got approved from the Engineer-in-charge before use in the work.
36. The rate for all items of work, shall unless otherwise clearly specified include cost of all labour, material and other inputs involved in the execution of the items.
37. The contractor shall make necessary arrangement for water for construction purpose as well as for electricity and its distribution as per IS Code at his own cost. The department will render only assistance to the contractor for making application to DJB/ authorized Electric supply agency, if required. All the fees and charges including consumption charges shall be borne by the contractor.
38. The contractor will not have any claim in case of any delay by the Engineer-in-Charge in removal of trees or shifting, removing of telegraph, telephone or electric lines (overhead or underground), water and sewer lines and other structure etc., if any which may come in the way of the work. However, suitable extension of time can be granted to cover such delay.
39. The contractor shall clean the site thoroughly of scaffolding materials, rubbish, equipment's left out of his work and dress the site around the building to the complete satisfaction of the Engineer-in-charge before the work is treated as completed.
40. The labour welfare fund/ cess @ 1% on gross work done shall be deducted.
41. Construction of Register of Tests- All the registers of tests carried out at Construction Site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge.

42. Construction of Material at Site (MAS) Register- All the MAS Registers including Cement and Steel Registers shall be maintained by Contractor which shall be issued to the contractor by Engineer-in-Charge.
43. All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested before covering.
44. Samples including brand / quality of materials and fittings to be used in the work shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work.
45. The contractor, his authorized representative, workmen etc. shall strictly observe orders pertaining to fire precautions prevailing in the area.
46. The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost.
47. Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.
The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night, speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused to work due to negligence on his part. No hindrances shall be caused to traffic, during the execution of the work.
48. 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, compound wall, services etc. are to be constructed.
49. The contractor shall provide at his own cost suitable weighing, surveying and leveling and measuring arrangements as may be necessary at site for checking. All such equipment's shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. Nothing extra shall be payable on this account.
50. Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings.
51. Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to approved manufacturers specifications where CPWD Specifications are not applicable. The contractor should get the materials (fixtures/fittings) tested from approved labs wherever required at his own cost.
52. The work shall be carried out in accordance with the Architectural drawings and Structural drawings, to be issued from time to time, by the Engineer-in-Charge. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work, nomenclature of items, specifications etc. and satisfy himself that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall supersede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-Charge

for immediate decision 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 and no claim, whatsoever shall be entertained on this account and same shall be rectified by the contractor at his own cost.

53. The contractor should submit the shop drawing of staging and shuttering for approval of Engineer-in- Charge before actually commencing the execution of work under the item. Nothing extra shall be payable on this account.
54. Other agencies may also simultaneously execute and install the works and 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 (for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall be available as specified elsewhere in the contract) and the contractor shall fix the same at the time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.
55. 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.
56. The contractor shall procure the required materials in advance so that there is sufficient time for testing of the materials and approval of the same before use in the work.
57. Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be protected against the damage by the contract or at his own expense. 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. In case temporary supporting of such services is required to facilitate the work, the same shall be done by the contractor at no extra cost.
58. In case the existing services are to be shifted permanently, then before dismantling the existing services, alternate/diversion of service lines has to be laid by the contractor so that there is no interruption in use of existing services. The contractor has to plan the alternate suitable route for diversion/shifting of service lines and get the same approved from the Engineer-in-Charge before starting shifting of services. Nothing extra shall be paid except the payment of dismantling and laying of new service lines as per conditions of contract.
59. The contractor shall be responsible for the watch and ward / guard of the buildings, 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 client department. No extra payment shall be made on this account.
60. The contractor shall be fully responsible for the safe custody of materials brought by him/ issued to him even though the materials may be under double lock key system.
61. For construction works which are likely to generate malba / rubbish, contractor shall dispose of malba, rubbish & other unserviceable materials and wastes at his own cost to the notified specified dumping ground

and under no circumstances these shall be stacked / dumped even temporarily, outside the construction premises.

62. 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. until / unless specified otherwise and any other incidental works required to complete this work. Nothing extra shall be payable on this account.
63. 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 nothing extra shall be paid except otherwise provided in the items of schedule of quantities.
64. Results of sub-surface investigations conducted at site are indicated in extracts for which the report is available in office of EE, CD-4. This information about the soil and sub-soil water conditions is being made available to the Contractor, in good faith, for guidance only and the Contractor is advised to obtain details directly as may be considered necessary by him before quoting rates in the tender. No claim whatsoever on account of any discrepancy between the sub-surface strata conditions that may be actually encountered at the time of execution of the work and those given in these tender documents, in- accuracy or interpretation thereof shall be entertained from the Contractor under any circumstances. The ground water table is a variable condition and the information given in the report is only indicative and it may vary from time to time.
65. Any legal or financial implications resulting out of disposal of earth shall be sole responsibility of the contractor. Nothing extra over the schedule shall be paid on this account.
66. 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 MCD/DDA etc. 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. It is clarified that the extra sewerage charges (one-time charges for commencement of work) required to be paid to the Municipal Corporation / other statutory bodies shall be paid by the department and need not be considered by the contractor. 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. All statutory taxes, levies, charges (including water and sewerage charges, charges for temporary service connections and / or any other charges) payable to such authorities for carrying out the work, shall be borne by the Contractor. The Contractor shall arrange to give all notices as required by any statutory / regulatory authority and shall pay to such authority all the fees that is required to be paid for the execution of work. He shall protect and indemnify the Department and its officials & employees against any claim and /or liability arising out of

violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives. Nothing extra shall be payable on these accounts. The fee payable to statutory authorities for obtaining the various permanent service connections and Occupancy Certificate for the building shall be borne by the Department.

67. Royalty (if any) at the prevalent rates shall be paid by the Contractor as per the terms of supply between them on all materials such as boulders, metals, sand and bajri etc. collected by him for the execution of the work, directly to the revenue authority of the state government concerned. Nothing extra shall be payable on this account.
68. 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.
69. The Contractor shall conduct his work so as not to interfere with or hinder the progress of the work being performed by other Contractors or by the Engineer-in-Charge. As far as possible, he shall arrange his work and place, so as not to interfere with the operations of other Contractors or shall arrange his work with that of the others, in an acceptable and coordinated manner and shall perform it in proper sequence.
70. 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.
71. The Contractor shall make all necessary arrangements for protecting from rains, the work already executed and for carrying out the further work, during rains 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.
72. 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.
73. The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general. The Contractor shall take all care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Engineer-in-Charge. The Contractor shall use such methodology and equipment's for execution of the work, so as to cause minimum environmental pollution of any kind during construction, to

have minimum construction time and minimum inconvenience to road users and to the occupants of the buildings on the adjacent plot and public in general, etc. He shall make good at his own cost and to the entire satisfaction of the Engineer in Charge any damage to roads, paths, cross drainage works or public or private property whatsoever caused, due to the execution of the work or by traffic brought thereon, by the Contractor. Further, the Contractor shall take all precautions to prevent any pollution of streams and waterways. All waste or superfluous materials shall be carted away by the Contractor, entirely to the satisfaction of the Engineer-in-Charge. Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings. No claim whatsoever 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 firsthand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.

74. All ancillary and incidental facilities required for execution of work like labour camp, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary structure for plants and machineries, water storage tanks, installation and consumption charges of temporary electricity, telephone, water etc. required for execution of the work, liaison and pursuing for obtaining various No Objection Certificates, completion certificates from local bodies etc., protection works, barricading, testing facilities / laboratory at site of work, facilities for all field tests and for taking samples etc. during execution or any other activity which is necessary (for execution of work and as directed by Engineer-in-Charge), shall be deemed to be included in rates quoted by the Contractor, for various items in the schedule of quantities. Nothing extra shall be payable on these accounts. Before start of the work, the Contractor shall submit to the Engineer-in-Charge, a site / construction yard layout, specifying areas for construction, positioning of machinery, material yard, cement and other storage, steel fabrication yard, site laboratory, water tank, etc.
75. The Contractor shall display all permissions, licenses, registration certificates, bar charts, other statements etc. under various labour laws and other regulations applicable to the works, at his site.
76. 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.

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

- (a) Allow use of scaffolding already erected, toilets, sheds etc.
- (b) Properly co-ordinate their work with the work of other Contractors.
- (c) Provide control lines and benchmarks to his associate Contractors and the other Contractors.
- (d) Provide electricity and water at mutually agreed rates.
- (e) Provide hoist and crane facilities for lifting material at mutually agreed rates.

- (f) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
 - (g) Adjust work schedule and site activities in consultation with the Engineer-in-Charge and other Contractors to suit the overall schedule completion.
 - (h) Resolve the disputes with other Contractor amicably and the Engineer-in-Charge shall not be made intermediary or arbitrator. The contractor shall indemnify the Department against any claim(s) arising out of such disputes.
77. On completion of work, the contractor shall submit at his own cost four prints of “as built” drawings of the completed works to the Engineer-in-Charge. These drawings shall have the following information.
- a) Run off of all piping and their diameters including soil, waste pipes and vertical stacks.
 - b) Ground and invert level of all drainage pipes together with locations of all manholes and connections, upto outfall.
 - c) Run off of all water supply lines with diameters, location of control valves, access panels etc. In case the contractor fails to supply “as built drawing” aforesaid within 30 days of the date of completion, then the recovery @ Rs.10, 000/- for each such set of drawings shall be made from the contractor’s final bill.
 - (d) In the item of providing and fixing precast reinforced cement concrete in shelves the cost of cutting chases and making good the same shall be inclusive in the item and nothing extra shall be paid on this account.

In the item of finishing walls with water proofing cement paint, only the plain/flat area shall be measured for payment and nothing extra shall be paid on account of pointed wall surface.

78. Unless otherwise specified in the schedule of quantities or CPWD specifications, the rates for respective items shall be all inclusive and apply to the following: -
- i. All lifts & all heights, floors including terrace, leads and depths.
 - ii. All labour, material, tools and plants and other inputs involved in the execution of the item.
 - iii. Any of the conditions and specifications mentioned in the tender documents.
 - iv. Providing sunk flooring in bath-rooms, kitchen, etc.
 - v. Any legal or financial implications resulting out of disposal of earth, if any.
 - vi. Payment of Royalty at the prevailing rates, if any, on the boulders, metal, shingle, sand and bajri etc. or any other material collected by him for the work direct to revenue authorities.
 - vii. Performance test of the entire installation(s) before the work is finally accepted.
 - viii. Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items.
 - ix. All incidental charges for cartage, storage and safe custody of materials brought to site.

79. All local taxes, Entry taxes, and all other taxes of Delhi State government and central taxes.

80. Compliance with local bye-laws, rules and regulations

The work shall be carried out in the manner complying in all respects with the requirements of relevant bye-laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-Charge and nothing extra shall be paid on this account. The contractor shall give due notices to the Municipality, Gram Panchayat, Police and /or other authorities as may be required under the law / rules under force and obtain all requisite licenses / permissions to carry out the work and pay all charges which may be leviable on account of his execution of the work under the agreement. Nothing extra shall be payable on this account.

In the event of any restrictions being imposed by security and traffic agencies 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 this account. The loss of time on this account, if any, shall have to be made up by generating additional resources etc.

81. Protection of existing structures / services and interference with other works

The contractor shall protect existing drains, pipes, cables, overhead wires, sewer lines, waterlines and other services encountered in the course of execution of the work, and shall repair any damage caused by him at his own expense. 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.

The contractor shall carry out his work so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in-Charge and shall as far as possibly arrange his work and shall place and dispose of the materials being used or removed, so as not to interfere with the operations of other contractors. He shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of Engineer-in-Charge.

82. Recesses, holes, openings, etc.

The contractor shall leave such recesses, holes, openings, etc. as may be required for the electric, air-conditioning and other related works for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall fix the same at the time of casting of concrete, stone work and masonry work or at any similar location if required, and nothing extra shall be payable on this account.

83. Temporary electricity and telephone connection for execution,

The contractor shall make his own arrangements for temporary electric and telephone connection, if required and make necessary payment including all initial cost, security money and electric / telephone charges for its use direct to the authority concerned. The Engineer-in-Charge will provide all possible assistance by way of reasonable recommendation for obtaining electricity connection to the concerned authorities but bears no responsibility for the same.

84. Jurisdiction of court

Courts at Delhi alone shall have the jurisdiction to decide any dispute arising out of or in respect of this contract.

85. All heights, lifts, leads and depths

Unless otherwise specified in tender document, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra shall be payable to him on this account.

86. Stacking of materials

The Contractor(s) 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. The stacking shall take place as per stacking plan however, if any change is required, the same shall be done with the approval of Engineer-in-Charge.

87. Prevention of nuisance and pollution control

The contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties from pollutants like smoke, dust, noise. The contractor shall use such methodology and equipment so as to cause minimum environmental pollution of any kind during and minimum hindrance to road users and to occupants of the adjacent properties or other services running adjacent/near vicinity. The contractor shall make good at his cost and to the 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 there on by the contractor. All waste or superfluous materials shall be carried away by the contractor, without any reservation, entirely to the satisfaction of the Engineer-in-Charge.

88. Watch and ward

Contractor shall make his own arrangement for watch and ward any theft or losses during this period shall be restored by contractor at his own cost.

89. Protection of flora

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

90. Setting out

- (i) It shall be responsibility of the contractor to ensure correct setting out of alignment. Real Time Kinematics / Total Station survey/DGPS instruments only shall be used for layout, fixing boundaries, and center lines, etc., Nothing extra shall be payable on this account.
- (ii) Though the site levels/FFL are indicated in the drawings the contractor shall ascertain and confirm the site levels with respect to benchmark from the concerned authorities. The contractor shall protect and maintain temporary/ permanent benchmarks at the site of work throughout the execution of work. These benchmarks shall be got checked by the Engineer- in-Charge or his authorized representatives. The work at different stages shall be checked with reference to bench marks maintained for the said purpose. Nothing extra shall be payable on this account.
- (iii) The contractor shall be entirely and exclusively responsible for the horizontal, vertical and other alignments, the level and correctness of every part of the work and shall rectify effectively any errors or imperfections therein. Such rectifications shall be carried out by the Contractor at his own cost to the entire satisfaction of the Engineer-in-Charge.

91. Scaffolding/ shuttering

Wherever required for the execution of work, all the scaffolding shall be provided and suitably fixed, by the

Contractor. It shall be provided strictly with steel double scaffolding system, suitably braced for stability, with all the accessories, gangways, etc. with adjustable suitable working platforms to access the areas with ease for working and inspection. It shall be designed to take all incidental loads. It should cater to the safety features for workmen. Nothing extra shall be payable on this account. It shall be ensured that no damage is caused to any structure due to the scaffolding.

At the request of contractor, the use of Marine Ply shuttering for beams and columns may be permitted by Engineer-in-Charge. Nothing extra shall be paid on this account. Foam Sheet/ Jointing tape shall be used in the joints of shuttering to ensure no leakage of cement slurry. Nothing extra shall be paid on this account.

92. Co-operation with other contractors /specialized agencies / subcontractors

- (i) The Contractor shall take all precautions to abide by the environmental related restrictions imposed by any statutory body having jurisdiction in the State as well as prevent any pollution of streams, ravines, river bed and water-ways. All waste or superfluous materials shall be transported by the Contractor, entirely to the satisfaction of the Engineer-in-Charge and disposed at designated places only. Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings. No claim what so ever on account of site constraints mentioned above or any other site constraints, lack of public transport, inadequate availability of skilled, semi-skilled or unskilled workers in the near vicinity, non-availability of construction machinery spare parts and 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.
- (ii) The Contractor shall cooperate with and provide the facilities to the sub-Contractors and other agencies working at site for smooth execution of the work. The Contractor shall:
 - (a) Allow use of scaffolding, toilets, sheds etc.
 - (b) Properly co-ordinate their work with the work of other Contractors.
 - (c) Provide control lines and benchmarks to his Sub-Contractors and the other Contractors.
 - (d) Provide electricity and water at mutually agreed rates.
 - (e) Provide hoist and crane facilities for lifting material at mutually agreed rates.
 - (f) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
 - (g) Adjust work schedule and site activities in consultation with the Engineer-in-Charge and other Contractors to suit the overall schedule completion.
 - (h) Resolve the disputes with other Contractors/ sub-contractors amicably and the Engineer-in- Charge shall not be made intermediary or arbitrator.
- (iii) Other agencies will also simultaneously execute and install the works of substation / generating sets, air-conditioning, lifts, etc. for the work and the contractor shall afford necessary facilities for the same.
- (iv) The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in-Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and in a proper co-ordination manner and shall perform it in proper

sequence to the complete satisfaction of others.

- (v) 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.
- (vi) 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.

93. Safety practices and supervision

- (i) Necessary protective and safety equipment 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.
- (ii) 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.
- (iii) In addition to the supervision of work by CPWD engineers, the Consultants/safety teams deployed by the CPWD, CD-4, New Delhi shall also be carrying out regular and periodic inspection of the ongoing activities in the work and deficiencies, shortcomings, inferior workmanship pointed out by them shall be communicated by CPWD engineers to the contractor. Upon receipt of instructions from Engineer-in-Charge these are also to be made good by necessary improvement, rectification, replacement upto his complete satisfaction.
- (iv) All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested as per the design conditions before covering and their record measurements in computerized measurement book duly checked shall be deposited with Engineer-in-Charge or his authorized representative, prior to hiding these items.
- (v) The contractor shall follow "Safety, Health and Environment Handbook 2019" issued by CPWD in 2019.

94. Submission and documentation

- (i) The Contractor shall display all permissions, licenses, registration certificates, bar charts, other statements etc. under various labour laws and other regulations applicable to the works, at his site office. He should also keep at site at least one set of BIS Codes and other relevant codes at site and produce the same if asked for by Engineer-in-Charge. In case of non-compliance, these codes will be purchased from the market and actual cost of purchase will be recovered from the next RA Bill of the Contractor.
- (ii) The Contractor shall make available four (04) sets of completed Building Drawings and services drawings like drainage, sewerage, water supply, road and electrical installations, "As Built Drawings" along with literatures, manuals, warranty certificates etc. of various installed fittings, fixtures and equipment for the completed projects. This shall be the prerequisite for payment of final bill.

95. Programme chart:

The Contractor shall prepare an integrated programme chart within fifteen days of issue of award letter including civil as well as E & M activities for the execution of work, showing clearly all activities from the start

of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the program within the stipulated period and submit the same for approval of the Engineer-in-Charge. These shall be submitted by the contract or through electronic media besides forwarding hard copies of the same. The integrated programme chart so submitted should not have any discrepancy with the physical milestones attached in the contract agreement. The programme chart should include the following:

- (i) Descriptive note explaining sequence of various activities.
- (ii) Programme for procurement of materials by the contractor.
- (iii) Programme for arranging and deployment of manpower both skilled and unskilled so as to achieve targeted progress.
- (iv) Programme of procurement of machinery/equipment having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.
- (v) Programme for achieving fortnightly micro milestones and periodic milestones.
- (vi) In case of noncompliance/delay in compliance in this, a recovery @ **Rs. 2,000/-** per day will be imposed which will be recovered from the immediate next R/A Bill of the Contractor.
- (vii) If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved programme referred above, the contractor shall produce a revised program within seven days showing the modifications to the approved program by additional inputs to ensure completion of the work within the stipulated time. A recovery of **Rs. 2,000/-** shall be made on per day basis in case of delay in submission of the modified programme.
- (viii) The submission for approval by the Engineer-in-Charge of such programme or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in- Charge to take action against the contractor as per terms and conditions of the agreement.

96. Cleanliness of site and inspections

- (i) The contractor shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavate dearth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed.
- (ii) Senior Officers of CPWD, Dignitaries from Central Ministry / Department 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.
 - a) Display Board showing detail of work, weekly progress achieved with respect to targets, reason of shortfall, status of manpower, wages being paid for different categories of workers.
 - b) Entrance and area surrounding to be kept clean.
 - c) Display layout plan, key plan, building drawings including plans, elevations and sections.
 - d) Upto date displays of Bar chart, CPM and PERT etc.
 - e) Keep details of quantities executed, balance quantities, deviations, possible Extra item, substituted Item etc.
 - f) Keep plastic / cloth mounted one sets of building drawings.
 - g) Set of Helmets and safety shoes for exclusive use for officers/dignitaries visiting at site.

97. Product delivery, storage and handling of chemicals

- (i) The contractor shall construct storage space for Chemicals materials to ensure that the storage

conditions are as recommended by the manufactures.

- (ii) All the materials shall be procured and delivered in sealed containers with labels legible and intact.
- (iii) All the chemicals {polymers, epoxy, water proofing compound, plasticizer, Poly sulphide, SBR based elastomeric, APP (Atactic Polypropylene Polymer), all exterior and interior paints, polish etc.) shall be procured in convenient packs say 20 litres or kg, capacity packing only or as approved by the Engineer-in-Charge, and not in bigger capacity containers, say 200 litre or kg, drums unless otherwise specifically permitted by the Engineer-in-Charge. One sample from each lot of the chemical procured by the contractor shall be tested in a laboratory as approved by the Engineer-in-Charge.
- (iv) All material required for the execution of the work shall be got approved, procured and deposited with the Departmental supervisory staff. The materials shall be kept in joint custody of the contractor and the Department. The watch and ward of such material shall, however, remain to be the responsibility of the contractor and no claim, whatsoever, on this account shall be entertained. Different containers of each chemical shall be serially numbered on packing and also consumed in that order. Day-to-day account of receipt, issue and balance shall be regulated by the Department and proper account shall be maintained at site of work in the prescribed form as per the standard practice.
- (v) All the chemicals shall be procured by the contractor directly from the manufacturer. In exceptional circumstances, the contractor may be allowed to procure the materials from the authorized dealers of the manufacturers, if specifically permitted by the Engineer-in-Charge.
- (vi) The original copies of challan /cash memos towards the quantity of various chemicals procured shall be made available by the contractor at the request from the Engineer-in-Charge and a copy of the same shall be kept in record.
- (vii) The Name of manufacturers, manufacturer's product identification, manufacturer's mixing instructions, warning for handling and toxicity and date of manufacturing and shelf life shall be clearly and legibly mentioned on the labels of each container.
- (viii) The contractor shall submit for the chemicals procured, manufacturer's and/or authorized dealer's certificate regarding supplying and verifying conformance to the material specifications, as specified.
- (ix) All filled containers shall be handled in safe manner and in a way to avoid breaking container seals.
- (x) Empty containers of the chemicals should not be removed from site till the completion of work and shall be removed only with the written approval of the Engineer-in-Charge.
- (xi) All arrangements for measuring, dosing and mixing of material / chemicals at site have to be made by the contractor.
- (xii) Contractor shall suitably advise his site Engineer and all the workers as regards safe handling of chemicals. Necessary protective and safety equipments in form of hand gloves, goggles etc. shall be provided by the contractor and be also used at site
- (xiii) All incidental charges of any kind including cartage, storage and wastage and safe custody of material etc. shall be borne by the contractor and no claim, whatsoever, shall be entertained on this account.
- (xiv) The chemicals shall be tested in an independent laboratory as approved by the Engineer-in-Charge at the frequency as specified. If required, more samples may have to be tested as per the directions of the Engineer-in-Charge. Nothing extra shall be payable on this account. However, testing charges shall be borne by the department for the samples satisfying the requirements specified in the tender.

98. De-watering

- (i) De-watering required, if any, shall be done conforming to BIS Code IS: 9759 (guide lines for de-watering during construction) and / or as per the specifications approved by the Engineer-in-Charge. Design of an

appropriate and suitable dewatering system shall be the Contractor's responsibility.

- (ii) Such scheme shall be modified / augmented as the work proceeds based on fresh information discovered during the progress of work, at no extra cost. At all times during the construction work, efficient drainage of the site shall be carried out by the Contractor and especially during the laying of plain cement concrete, taking levels etc. The Contractor shall also ensure that there is no danger to the nearby properties and installations on account of such lowering of water table. If needed, suitable precautionary measures shall be taken by the Contractor. Also, the scheme of dewatering adopted shall have adequate built-in arrangement to serve as stand-by to attend to repair of pumps etc. and disruption of power / fuel supply. Nothing extra shall be payable on this account.
- (iii) In trenches where surface water is likely to get into cut / trench during monsoons, a ring bund of puddle clay or by any other means shall be formed outside, to their required height, and maintained by the Contractor. Also, suitable steps shall be taken by the Contractor to prevent back flow of pumped water into the trench. Nothing extra shall be payable on this account.
- (iv) For works below ground level the contractor shall keep that area free from water. If dewatering or bailing out of the water is required, the contractor shall do the same at his own cost and nothing extra shall be paid. Nothing extra shall be paid for execution of work in or under water and / or liquid mud including pumping out of water as required.

99. Preparation of sample

The contractor shall construct sample of items as required before taking up the mass execution as per the direction of Engineer-in-charge.

100. Compliance to environmental laws

The contractor shall comply the directives of Hon'ble National Green Tribunal dated 04.12.2014 & 10.04.2015 and EIA Guidance Manual issued in February 2010 and Construction & Demolition Waste Management Rules, 2016. The compliance of the contractor shall not be limited to the following:

- (i) The contractor shall not store/dump construction material or debris on metalled road.
- (ii) The contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic /inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
- (iii) The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precaution that the vehicles are properly cleaned and dust free to ensure that enroute their destination, the dust, sand or any other particles are not released in air/contaminate air.
- (iv) The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
- (v) The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relating to dust emission.
- (vi) The contractor shall ensure that C&D waste is transported to the approved C&D waste site of local authority only as per Construction & Demolition Waste Management Rules, 2016 and due record shall

be maintained by the contractor.

- (vii) The contractor shall compulsorily use jet in grinding and stone cutting.
- (viii) The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF Guidelines, 2010.
- (ix) The contractor shall carry out on-road-inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
- (x) The contractor shall ensure that the DG sets comply emission norms notified by MoEF.
- (xi) The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 kmph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.
- (xii) The contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.
- (xiii) **No extra payment will be made for operation/activity mentioned at Sl.No. (i) to (xii) above.**

101. Structural drawings for structural safety

Following guidelines to be followed where height of casting of concrete is higher than 3.5 m or where higher loading are coming during casting of concrete or large span structure more than 8 meter long or some special structure like domes, vaults etc.

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

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

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

IV. A detailed programme of field safety inspection of centering/scaffolding/form work of such structures during different stages should be chalked out and strictly followed.

Provision of safety net, fall arresting system including other safety gears, for workers, working over these structures shall be made in contract and should be followed strictly.

103. For avoiding of scratch marks or damage to the vitrified / ceramic floor tile, the necessary arrangement of hessian cloth with a coat of plaster of Paris over it shall be provided. Nothing shall be paid extra on this account.

104. Protection of existing buildings in the vicinity of working area and valuables shall be responsibility of the contractor. Fall nets and scaffolding nets for protection from debris/dusts and noise etc. are to be provided during the construction period. Nothing extra shall be paid on this account.

105. The huts for labour are to be erected at the site of work by the contractors at his own cost. He shall also identify suitable place for installation of concrete batch plant, yard for keeping various materials, cement/steel store inside the plot. Suitable place for erection of labour huts, batching plant (Fixed or Mobile, having facility for batch sheet printout) and other stores shall be identified in consultation with EE CD-4CPWD. All labour and staff of contractor shall possess valid identity cards such as Aadhar Card, Voter Card 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 these accounts and no claim, whatsoever, on these accounts shall be entertained. The contractor has to built his site office for their staff and engineers, testing laboratories etc. **The site office, constructed above, shall be dismantled after completion of the work** as per direction of Engineer-in-Charge. Nothing extra shall be payable on this account.
106. The original copies of challan/cash memos towards the quantity of various materials procured shall be made available by the contractor at the request from the Engineer-in-Charge and a copy of the same shall be kept in record. Warranty/Guarantees cards of various materials shall also be submitted by the contractor during handing over of the buildings to the client.
107. **Construction of Register:** Site Order Book shall be kept at site. 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.

Construction of Register of Tests –

- (i) All the registers of tests carried out at Construction Site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge.
- (ii) All Samples of materials including Cement Concrete Cubes shall be taken jointly with Contractor by JE/AE and out of this at least 50% samples shall be taken in presence of AE in charge. If there is no JE, all Samples of materials including Cement Concrete Cubes shall be taken by AE jointly with Contractor. All the necessary assistance shall be provided by the contractor. Cost of sample materials is to be borne by the contractor and he shall be responsible for safe custody of samples to be tested at site.
- (iii) All the test in field lab set up at Construction Site shall be carried out by the Engineering Staff deployed by the contractor which shall be 100% witnessed by JE/AE. At least 10% of the tests are to be witnessed by the Executive Engineer / Executive Engineer.
- (iv) Minimum 10% test should be conducted in outside approved lab as directed by Engineer-in- Charge.
- (v) 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.
- (vi) Contractor shall be responsible for safe custody of all the test registers.

Submission of statement of all test conducted at site/lab, material at Site Register along with each alternate Running Account Bill and Final Bill shall be mandatory.

Construction of Material at Site (MAS) Register –

- (i) All the MAS Registers including Cement and Steel Registers shall be maintained by Contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff. Authenticated copies of bills / vouchers of materials which has to be entered in the MAS register are to be submitted by the contractor to CPWD before making payments.
- (ii) Each of the entry of receipt of material at site shall be 100% test checked by JE or by AE/AEE if there is

no JE.

(iii) Each MAS Register shall be checked by JE at least twice a week and at least once a week by AE/AEE. If there is no JE then MAS registers will be checked by AE at least twice a week.

(iv) Cement Register shall be reviewed by EE at least once in a month.

(v) It will be deemed that work so measured, checked and paid is of the required quality and standard, both in respect of ingredients as well as the intended functions it is supposed to perform. In other words, the work would not only meet the required specifications but also the workmanship as per sound engineering practices.

(vi) The SE/EE shall also have to check and sign these reports at suitable intervals in token of his ensuring compliance of the 'Quality Assurance Plan' for the work.

(vii) Copies of bills: Agency will provide authenticated copies of itemize bills of materials which has to be entered in the MAS Register viz steel, cement, bitumen, paint, water proofing or any other item suggested by the Engineer-in-Charge.

108. **Quality Assurance:** Quality of work is of paramount importance. Contractor will be required to engage well-experienced supervisors, engineers, skilled labour and deploy modern T&P and other equipments to execute the work in a time bound manner. Many items like exposed finish form work, specialized flooring work, factory made door-window shutters, proper slope maintaining in toilet units, sanitary- water supply installation, textured finishing, aluminum and glass work and water proofing treatment will specially require engagement of skilled workers having experience particularly in execution of such items.

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.

In addition to the supervision of work by CPWD engineers, the Consultants / third party quality assurance representatives / Quality Assurance of CPWD representatives shall also be carrying out regular and periodic inspections of the on-going activities in the work and deficiencies, shortcomings, inferior workmanship pointed out by them shall be communicated by CPWD engineers to the contractor. Upon receipt of instructions from Engineer-in-Charge these are also to be made good by necessary improvement, rectification, replacement upto his complete satisfaction. Special attention shall be paid towards line and level of internal and external plastering, exposed smooth surface of RCC members by providing fresh shuttering plates, rubberized linings to all the shuttering joints, accurate joinery work in wooden doors and windows, thinnest joints in stone/ tiling / cladding work, non-hollowness in floor and dado tiles work, protection of scratches over flooring by impounding layer of Plaster of Paris, water tight pipe linings, absence of hollow vertical joints in brick masonry, proper compaction of filled up earth and up keeping of quality assurance shall be of paramount importance. It is proposed to have monthly meeting having CPWD officers for progress re view.

Method Statement: The Contractor shall submit within 15 (fifteen) days after the date of award of work, a detailed and complete method statement for the execution, testing and Quality Assurance. All the materials to be used in the work to give the finished work complete in all respects, shall comply with the requirements of the specifications and shall pass all the tests required as per specifications as applicable or such

specifications / standards as directed by the Engineer-in-Charge. However, keeping the Quality Assurance in mind, the Contractor shall submit, on request from the Engineer-in-Charge, his own Quality Assurance procedures for basic materials and such items, to be followed during the execution of the work, for approval of the Engineer-in-Charge.

Checklist

- (i) As and when any important item is taken up for execution, the Contractor shall submit the specifications and in variably make a checklist. This checklist should be got approved from the Executive Engineer and should be shown to the inspecting officers. The important items inter-alia includes foundation work, including reinforcement and shuttering, brickwork, cast-in-situ mosaic flooring, doors & windows, plumbing, including water supply pipe lines, roof treatment, earth filling etc. which are a few illustrative items for checklist purpose.
- (ii) Sample checklists for items of concrete for raft, columns/beams/slabs, water supply lines, brick work and plastering are given in CPWD Specification 2019 with correction slip upto last date of submission of bid. In addition to this all-other important item such as flooring, door windows, sanitary, painting etc. shall be made on these guidelines in consultation with Engineer-in-Charge.

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.

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 relevant registers will be made by the designated Engineering Staff of the contractor and same should be regularly reviewed by JE/AE/AEE/EE/SE, CD-4, CPWD, New Delhi. Contractor shall be responsible for safe custody of all the registers.

The Contractor shall at his own risk and cost make all Arrangements and shall provide free of cost 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.

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 on this account.

Testing charges:

Samples of all materials required for testing is included in the cost of work. Similarly, expenditure for testing in house or through **outside laboratory approved by the Engineer-in-Charge shall be borne by the contractor** Frequency of testing of material will be as per frequency laid down in CPWD Specification or otherwise specified. No reimbursement of testing charges shall be done.

If any load testing or special testing is to be done for any sample whose strength is doubtful, the cost of the

same shall also be **borne by the contractor**. All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested as per the design conditions before covering.

Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should confirm to bylaws 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. 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.

The contractor shall have to execute guarantee bonds in respect of specified items mentioned in tender document.

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.

Quality Assurance is to be done by CPWD team of ADG(Delhi), Vidyut Bhawan office. Contractor shall co-operate with the third party / Quality Assurance team of CPWD for quality assurance of the construction work. The third party / Quality Assurance team of CPWD will collect the samples of construction materials/reinforcement for necessary tests. The samples would be collected jointly in the presence of the representatives of contractor and Engineer-in-Charge. The cost of sample materials/reinforcement, packaging, transportation charges shall be borne by contractor. All necessary test records shall be produced and maintained by the quality engineer of contractor. Rate quoted by contractor is inclusive of GST and Labour Cess, nothing is payable on this account.

Executive Engineer
CD-4, CPWD,
Pusa, New Delhi

Special Conditions

- 1.0(a) The work of **Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.** The Site shall be made available to the contractor for execution of work in the phased manner as specified in schedule F, and the contractor shall execute the work. The contractor shall not claim anything extra over agreement rates, due to execution of works shall increase or decrease the labour and other resources as required to complete the work within stipulated time, nothing extra shall be paid or claimed on this account.
- 1.0(b) The contractor shall complete civil work handed over to the agency, at a time in complete shape before handing over to department. Contractor shall make his own arrangement for watch and ward. from the date of handing over to him for civil work, any theft or losses during this period shall be restored by contractor at his own cost.
2. Before start of repairs/upgradation work, the JE/AE shall visit and decided the scope/ major items of the works to be carried out particularly regarding Sanitary installations, C.P. fittings, Wall tiles, flooring and finishing work etc.
3. The Corrected form CPWD 7 is available with the cashier for inspection. The contractor is requested to go through the same. They will be bound the terms and conditions stated therein.
4. The contractor is advised to get acquainted with the proposed works & its site and also study the specifications and special conditions carefully before bidding. No claim of any sort shall be entertained on account of any site conditions & ignorance of specifications and special conditions.
5. The works shall be carried out as per CPWD specifications 2019 Vol. I & II with up to date corrections slips unless otherwise specified in the nomenclature of the individual items or in the specifications attached. At the points where specifications are silent, the instructions of the Engineer-in-charge shall be final.
6. In the event of any discrepancy between the nomenclature of the item of work as per schedule of quantities and the attached specification 2019 Vol. I & II, the nomenclature will prevail.
7. In the event of any discrepancy between the CPWD specifications 2019 Vol. I & II and special conditions attached, the special conditions shall prevail.
8. Unless otherwise provided in the schedule of quantities the rates bidded by the contractor shall be inclusive of all leads and lifts and shall apply to the heights and depths of the building and nothing extra shall be payable on him on this account.
9. The rates for all items of work, shall unless clearly specified otherwise, include the cost of all labour,

materials and other inputs involved in the execution of the items of work.

10. The rates quoted by the contractor shall be taken as net and nothing extra shall be paid on any account i.e. royalty, carriage, sales tax and stacking at required place etc.
11. 1% water charges if water not arranged by contractor, Income tax plus surcharge and labour cess and GST as applicable shall be recovered from the gross amount of each bill.
12. All materials obtained from Govt. stores or otherwise shall be got checked by the Junior Engineer-in-charge of the work on receipt of the same at site of work before use.
13. The contractor has to make his own arrangement for all T & P like ladders, ghoree, sutli, empty containers, brushes and paper, kuchies etc. required for work and nothing extra shall be paid for the same.
14. The contractor shall get approved the brands/shades of dry distemper, oil bound distemper, synthetic enamel paint, plastic emulsion paint etc. from the Engineer-in-charge before supply of the materials.
15. Materials shall be brought to the site of work in original containers with the manufacturer's seal intact.
16. The materials required for day's work shall be issued to the contractor or his authorized representative daily by the Junior Engineer-in-charge of the work any balance of the material left at end of the days of work and empty containers shall be returned to the Junior Engineer. The day to day issue account of the materials shall be maintained by the Junior Engineer-in-charge and shall be signed daily by the contractor or his authorized agent in token of receipt of the materials failing which no payment of bill shall be made to the contractor. The empty containers shall not be removed from the site of work, without written orders of the Engineer-in-charge.
17. To avoid disputes later on, contractor shall get the measurement recorded within a week's time and shall submit his bills as per relevant clause (6A) of contract. Any dispute regarding measurement including work done shall be judged within a week's time failing which measurement, certified and recorded, shall be entertained.
18. The contractor shall mark all buildings boundaries any other services line on ground or upto depth of 1.5 m below ground level within 15 days from date of start of work for trees cutting/Shifting of services if any. Forest department will cut trees which are required to be cut for the construction of all permanent and temporary buildings, roads and services above ground level. Contractor shall also facilitate and extend all necessary help to the forest department which they may require during cutting and removal of trees. So, that forest department finish their work within planning period.
19. Contractor shall take all necessary measures required to be taken to remove any live or dead service

lines running through the plot area. Approvals required, if any, shall be taken by the Contractor. Charges, if any, required to be paid to local body on above account shall be made by contractor himself which will be reimbursed to him.

(i) Other Works:

- (a) Suitable warning signs and safety tape as required shall be installed in the blocks wherever work is taken up.
- (b) Submission of measurements, for record and other purposes.
- (c) After completion of the work contractor shall submit as built drawings of all services in Auto CAD including five sets of colored drawings on A0 size.

QUALITY ASSURANCE/TESTING OF MATERIALS: -

24. Minimum Quality Assurance Plan done as per No. DG/SOP/28 dated 15.11.2021.

24.1 The contractor shall establish a laboratory at site to test the coarse aggregate, fine aggregate, water, sand, cement etc. to be used in construction With each Running Bill, the details of test carried out shall be submitted by the contractor as per Performa. Samples of materials required for testing shall be provided free of charge by the contractor. The cost of tests to be carried out in approved labs shall be borne by the contractor in the manner indicated below: -

24.2 **As per modified provisions of CPWD works Manual 2019 vide no. DG/MAN/410 dtd. 22.10.2021 all expenditure to be incurred for testing of samples e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.**

24.3 All the test in field lab setup at construction site shall be carried out by the Engineering Staff deployed by the contractor which shall be 100% witnessed by JE & 50% of tests shall be witnessed by AE –in-charge. At least 10% of the tests are to be witnessed by the EE. 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/EE. Contractor shall be responsible for safe custody of all the test registers. Submission of copy of all test registers, materials at site Register and hindrance register along with each alternate Running Account Bill and Final Bill shall be mandatory. Extensive testing of the materials used for construction is a pre-requisite for attaining high quality of the work. This shall also require specialized tests, physical, chemical, ultrasonic, x-ray and various other types of tests which cannot possibly be carried out in a site laboratory. These tests also require specialized personnel who regularly deal in such testing. Therefore, the need arises for carrying out the tests in outside laboratories.

24.3. Approved laboratories with priority order as given below: -

The laboratories in the Government sector, Semi Government, All Govt. Institutions, Indian Institutes of technology, National Institutes of technology, Central and State research Centre, Centrally and state funded laboratories stand approved for testing-

Or any other private laboratory approved by ADG (Delhi).

- i. However, if any ultrasonic pulse velocity / load test or special testing is to be done for concrete whose strength is doubtful, the cost of the same shall be borne by the contractor. 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.

25. Field laboratory

The contractor has to establish field laboratory at site including all necessary equipment's and skilled man power for the **Field Tests** at his own cost to have proper quality control.

For performing the above tests, the **Field-Testing Equipment's and Instruments** are to be arranged and maintained by the contractor.

- 25.1. 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. The list of Laboratory/ Field equipment referred above are to be arranged and maintained by the contractor at the site of work. In case the equipment required for any test is not available at site, the department shall get the test conducted from the third party. However, in that event, besides providing free materials of sample, the cost of taking of sample, packing, transportation, testing charges etc. shall be borne by the contractor irrespective of the results.

26. Sample of materials: -

- 26.1 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 is not specified in the item of work, the contractor shall submit the samples as per **List of Approved makes** for approval of Engineer-in-Charge. For all other items, ISI Marked materials and fittings 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 for the approval of Engineer-in-Charge. To avoid delay, contractor should submit samples as stated above before 60 days of executing that item for approval, so as to give timely orders for procurement. 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.

- 26.2 BIS marked materials except otherwise specified shall also be subjected to quality test besides testing of other materials as per the specifications described for the item/material. Wherever BIS marked materials are

brought to the site of work, the contractor shall, furnish manufacturer's test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfies the provisions of specifications relevant to the material and / or the work done.

BIS marked items (except cement & steel for which separate provisions have been made in para 4.0) required on the work shall be got tested for only important tests, which govern the quality of the product, as decided by the Engineer-in-Charge. The frequency of such tests (except the mandatory test) shall be 5% of the frequency as specified in BIS. For mandatory test, frequency shall be as specified in the CPWD Specifications. For certain items, if frequency of tests is neither mentioned in the CPWD Specifications & BIS, then tests shall be carried out as per decision of Engineer-in-Charge.

27. Cement & steel reinforcement (if not stipulated and to be supplied by the contractor).

Contractor has to produce manufacturers test certificate and challan for each lot of Cement & Steel Reinforcement procured at site.

27.1 CEMENT: -The contractor shall procure 43 grade Ordinary Portland Cement conforming to IS: 8112 / Portland Pozzolana Cement conforming to IS: 1489 (Part-1) as required in the work from reputed manufacturers of cement. The cement of approved make as per list of preferred brands in 50 kg. bags bearing manufacturer's name and ISI marking, **along with manufacturers test certificate for each lot shall be procured by the contractor.** Portland Pozzolana Cement is to be used for RCC works only subject to fulfillment of conditions of circular No. CDO/SE(RR)/Fly ash (MAN) 02 dated 09.04.2009. However, if the contractor uses higher grade of cement or uses OPC only nothing extra shall be paid.

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. Cement shall be brought at site in bulk supply of approximately **10 tonnes** or as decided by the Engineer-in-Charge.

27.2 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.

Cement godowns having capacity of **500 Bags** or 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.

27.3 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause-38 of the contract and shall be governed by the conditions laid therein. If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in Clause – 38), the cost of quantity of cement not so used shall be recovered from the contractor as specified in schedule. Decision of the Engineer-in-Charge in regard to theoretical quantity of cement which should have been actually used as per the schedule and recovered at the rate specified, shall be final and binding on the contractor.

27.4 For non-scheduled items, the decision of the **Superintending Engineer, DC-7, CPWD, IARI Pusa, New Delhi** regarding theoretical quantity of the cement, which should have been actually used, shall be final and binding on the contractor. 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.

27.5 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. 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.

27.6 **The original voucher and test certificate of cement shall be defaced by the Site staff and verification of receipt on original voucher, return to agency, photocopy of this receipt and original test certificate kept on record in the site office.**

28. **Steel reinforcement:** The contractor shall procure ISI marked TMT Bars of Fe 500D grade from the steel manufacturer such as SAIL, TISCON, RINL, Jindal Steel & Power Ltd. and JSW Steel Ltd. Or their authorized dealer having valid BIS License for IS 1786-2008 (Amended – November 2012). If TMT bars of any dia of above-mentioned make is not available in market at any time then the contractor on producing non availability certificate from the manufacturers may procure TMT bars of that dia from Steel manufacture as per the following guidelines:

28.1 The contractor shall have to obtain and furnish test certificates & challan to Engineer –in- Charge in respect of all the supplies brought by him to the site of work. Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications, as defined under para 4.3.1 (a) above, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time or written orders from the Engineer-in Charge to do so.

28.2 The steel reinforcement shall be brought in bulk supply of **10 tonnes** or more or as decided by the Engineer-in-Charge along with manufacturer test certificate for each lot. The steel reinforcement 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 these accounts. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

28.3 Unless OTHERWISE specified elsewhere in the contract document, the testing (nominal mass, tensile strength, bend test, re bend test etc.) shall be done as per frequency of samples not less than as given below

SIZE OF BAR	FOR CONSIGNMENT BELOW 100 TONNES	FOR CONSIGNMENT OVER 100 TONNES
Under 10 mm dia	One sample for each 25 tonnes or part thereof.	One sample for each 40 tonnes or part thereof
10 mm to 16 mm dia	One sample for each 35 tonnes or part thereof.	One sample for each 45 tonnes or part thereof
Over 16 mm dia	One sample for each 45 tonnes or part thereof	One sample for each 50 tonnes or part thereof

28.4 The contractor shall supply free of charge the steel required for testing including transportation to testing laboratories.

28.5 The Actual issue and consumption of steel on work shall be regulated and proper account maintained as provided in clause 10 of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in Clause 38 of the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made. In case of excess consumption, no adjustment needs to be made. Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-Charge

28.6 The contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the Site staff along with the relevant documents before acceptance. The contractor shall obtain Original Vouchers and Test Certificates and furnish the same to the Engineer-in-Charge in respect of all the lots of steel brought by him from approved supplier to the site of work. **The original vouchers and test certificates shall be defaced by the CPWD Site staff and a copy of voucher and original test report shall be kept on record in the site office.**

28.7 Reinforcement including authorized spacer bars and lap pages shall be measured in length of different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimeter. Wastage and unauthorized overlaps shall not be measured. The standard sectional weights referred to as in Table 5.4 in para 5.3.4 in CPWD Specifications will be considered for conversion of length of various sizes of M.S. Bars, Steel Bars and T.M.T. bars into Standard Weight.

28.8 **Records of actual Sectional weights shall also be kept dia-wise and lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site.** The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as Derived Actual Weight. However, for the

stipulated issue of steel reinforcement up to and including 10mm diameter bars, the actual weight of steel issued shall be modified to take into account the variation between the actual and the standard coefficients and the contractors' accounts will be debited by the cost of modified quantity. If the Derived Weight as in above is less than the Standard Weight as in Sub-para. Above then the Derived Actual Weight shall be taken for payment provided, it is within the following tolerances specified in IS1786-2008, otherwise whole lot will be rejected **Tolerances on Nominal Mass.**

Nominal Size in mm Tolerance on Nominal mass Percent

	Batch	Individual sample*	Individual sample for coil**
a) Upto and including 10	± 7	-8	± 8
b) Over 10 up to and Including 16	± 5	-6	± 6
c) Over 16	± 3	-4	± 4

* For individual sample plus tolerance is not specified.

**For coils batch tolerance is not specified.

b) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual Weight and the Standard Weight.

28.9 Testing charges for steel reinforcement bars, structural steel will be borne by the agency in both cases whether result conforms to relevant BIS code or not.

29. Secrecy

29.1 The contractor shall take all steps necessary that all persons employed on any work in connection with the contract have notice that the Indian Official Secrets Act 1923 applies to them & will continue so to apply even after the execution of such works under the contract. The contract is confidential and must be strictly confined to the contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers as necessary) and to the purpose of the contract. All documents, copies thereof & extracts there from furnished to the contractor shall be returned to the Engineer-in-Charge on the completion of the work / works or the earlier determination of the contract.

30. Labour and security

30.1 Contractor should provide his plan for labour huts as per his requirement and get it approved from the Engineer-in-Charge. The contractor will be provided space for labour huts etc. inside the campus but the space requirement and location, as assessed by Engineer-in-Charge shall be final and binding. Contractor has to follow the security requirement of the campus and obtain necessary entry passes for the labour and vehicles and follow security checks at entry / exit gates, restriction on movement of vehicle, restricted timings of working etc. The Department however shall assist the contractor in obtaining such passes for movement of vehicles and labour. No claim whatsoever shall be entertained on account of delay in entry of vehicles and labour including restrictions in working hours, if there is any. The contractor shall employ only Indian Nationals after verifying their antecedents and loyalty. The contractor shall, on demand submit list of

his agents, employees and work people concerned & shall satisfy as to the bonafides of such people.

- 30.2 The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Controlling Administrative Authority of the campus/area (hereinafter referred to as “Administrator”). The contractor, his representative, workman shall be allowed to enter through specified gates & timing as laid down by the controlling authority. They shall be issued an identity card or an individual pass in accordance with the standing rules & regulations & they should possess the same while working. The contractor shall be responsible for the conduct & actions of his workmen, agents / representatives. Normally contractor shall be allowed to carry out work between 7 AM to 6 PM. However, he may also be allowed to carry out the work beyond 6 PM & upto 7 AM if the site conditions / circumstances so demand with prior written permission from the “Administrator”. However, if the work is carried out in more than one shift or at night, no claim on this account shall be entertained.
- 30.3 Normally contractor’s material / vehicles etc. shall be allowed to move in / go-out between 7 AM to 7 PM only & no movement of material / vehicles out of site of work shall be allowed during night hours unless specific permission is obtained from the “Administrator”. In case if a separate entry has been allowed, the contractor has to make all arrangement for making a separate entry gate and barricading of the working area to segregate/separate the same from other areas. All these have to be done by the contractor at his own cost including safeguarding any untoward Incident in the restricted area due to separate entry gate and barricading arranged by the contractor. No extra amount on this account shall be payable by the department.

31. Documentation

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

32. PROGRAM CHART: -

- 32.1 The Contractor shall prepare an integrated program chart for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the program within the stipulated period or earlier and submit the same for approval of the Engineer-in-Charge within **15 days** of the issue of letter of acceptance for the contract. This program chart should clearly indicate that work will simultaneously be started on all different locations of Class rooms and hostels. The integrated program chart so submitted should not have any discrepancy with the milestones attached in the Contract Agreement.
- 32.2 The work has to be completed in stages as indicated in the **Milestones under Schedule ‘F’ (As per General Index)** and the program should be prepared in such a manner to achieve these Milestones as indicated therein or earlier. The program chart should include the following: -
- Descriptive note explaining sequence of various activities.
 - Network (PERT / CPM / BAR CHART) prepared on MS project which will indicate resources in financial terms, manpower and specialized equipment’s for every important stage.
 - Program for procurement of materials by the contractor.
 - Program of procurement of machinery / equipment’s having adequate capacity, commensurate with

the quantum of work to be done within the stipulated period, by the contractor.

32.3 If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved program referred above, the contractor shall produce a revised program showing the modifications to the approved program by additional inputs to ensure completion of the work within the stipulated time. The submission of revised program or approval by the Engineer-in-Charge of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

Notwithstanding the fact that the contractor will have to pay to the labour and other staff engaged directly or indirectly on the work according to the provisions of the labour regulations and the agreement entered upon and/or extra amounts for any other reason.

33. PROGRESS AND MONITORING OF WORK:

33.1 Apart from the above integrated program chart, the contractor shall be required to submit monthly progress report of the work in a computerized form. The progress report shall contain the following, apart from whatever else may be required as specified:

- (i) Construction schedule of the various components of the work through a bar chart for the booth (or as may be specified), showing the milestones, targeted tasks and up to date progress. Progress chart of the various components of the work that are planned and achieved, for the month as well as cumulative up to the month, with reason for deviations, if any in a tabular format. Plant and machinery statement, indicating those deployed in the work.
- (ii) Man-power statement, indicating individually the names of all the staff deployed on the work, along with their designations. Financial statement, indicating the broad details of all the running account payment received up to date, such as gross value of work done, advances taken, recoveries effected, amount withheld, net payments details of cheque payment received etc.

33.2 For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them. The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors is minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously while raising the brick work. The contractor shall ensure proper co-ordination of various disciplines viz. building works, sanitary & water supply & electrical installations etc.

33.3 The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in-Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of Engineer-in-charge.

33.4 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. 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.

34. ENGAGING SPECIALISED AGENCIES FOR WORKS: -The main contractor has to associate agencies **for specialized component(s)** conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in- charge of relevant component(s) in complete shape or as directed by Engineer-in- Charge within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-charge of relevant component(s).The Specialized agency for the work shall be got approved from the Engineer-in-Charge well before actual commencement of the item of work for major and minor component separately as prescribed. The contractor shall submit the list of specialized agencies to substantiate technical capability and experience of the agency for prior approval of the Engineer-in-Charge. Same milestones shall be applicable for all components of work.

35. SAMPLE WORK: -The contractor shall construct sample of items as required before taking up the mass execution as per the direction of Engineer-in-charge.

36. Defect liability: The contractor's liability during the defect liability period will be 12 months from the final date of completion or handing over to client department whichever is later as per clause 17 shall be limited to rectification of defects including replacement as follows which in the opinion of Engineer-in-Charge are not manmade.

Sl. No.	Description	Defect Liability
(i)	Concrete	(a) Rectification of structural / superficial / non-structural cracks. (b) Rectification of dampness / seepage in roof slab / junctions & sunken portion. (c) Rectification of cracks in beam, shade, column.
(ii)	Brick work/ Concrete Block Masonry	(a) Rectification of cracks in panel wall /portion. (b) Cracks / settlement of dwarf walls. (c) Rectification of efflorescence/leaching.
(iii)	Plastering	(a) Rectification of structural / superficial cracks if any. (b) Rectification of protruding / peeling off plaster if any. (c) Rectification of efflorescence
(iv)	Flooring	(a) Rectification of sinking portion of plinth protection including saucer drain. (b) Settlement of foundation & floors, hollow sounding, cracks in tiles/stones, improper slope.
(v)	Plumbing / Sanitary fittings	(a) Making good of leakage through soil / waste pipe joints. (b) Replacement of looking mirror if found wavy. (c) Rectification of leakage of overhead tanks. (d) Leakage / seepage of sunken floor, blockage of taps / pipes, non-functioning of cistern.
(vi)	Finishes	(a) Making good of defective / dissimilar patches of painting to match with Remaining surfaces, peeling of paint.
(vii)	Internal Water Supply	(a) Repairs / Replacement of defective taps /fittings. (b) Repair to leakage of GI/CPVC water pipe lines including joints. (c) Removal of blockage of GI/CPVC pipelines.
(viii)	Sewage	(a) Rectification of slope / system if found defective during use. (b) Rectification of major blockage in Sewer lines. (c) Cracks & settlement of sewage lines.

(ix)	Drains	(a) Repair to Drains. (b) Settlement of Drains
(x)	External Water Supply	(a) Repairs to installations & fittings.
(xi)	General	(a) All manufacturing defects of structures / fixtures / fittings / equipments other than listed above including any defects of shrinkage or other faults that appear in the work within twelve months after a certificate of its completion is given by the Engineer-in-Charge shall be rectified by the contractor.

Above list is not exhaustive but indicative only. The contractor is bound to rectify the defects in items executed under this contract.

37 SAFETY MEASURES

- a. Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.

37.2 WARNING / CAUTION BOARDS

All temporary warning / caution boards / glow signage display such as “Construction Work in Progress”, “Keep Away”, “No Parking”, Diversions & protective Barricades etc. shall be provided and displayed during day time by the Contractor, wherever required and as directed by the Engineer- in-Charge. These glow signage and red lights shall be suitably illuminated during night also. The Contractor shall be solely responsible for damage and accident caused, if any, due to negligence on his part. Also, he shall ensure that no hindrance, as far as possible, is caused to general traffic during execution of the work. 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.

37.3 SIGN BOARDS

The Contractor shall provide and erect a display board of size and shape as required and paint over it, in a legible and workman like manner, the details about the salient features of the project, as required by the Engineer-in-Charge. The Contractor shall fabricate and put up a sign board in an approved location and to an approved design indicating name of the project, client / owner, architects, structural consultants, Department etc. besides providing space for names of other Contractors, Associate contractors and specialized agencies. Nothing extra shall be payable on this account.

- (i) 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 used at site.
- (ii) 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.

38. Special condition for Hardware and sanitary wares:

- 38.1 Engineer-in-Charge will take a decision regarding model numbers of equivalent Door/window hardware's/ sanitary wares at the time of execution, in case the material, from the manufacturer whose model number is mentioned, is not available. However, in case, the equivalent model so approved, is cheaper than the model already mentioned in item/approved makes list, the price adjustment will be made based on the difference in market rate. In case, the rate of subsequently approved model is more, no extra payment will be made on this account."
- 38.2 As part of quality assurance, once the shade is approved by the Engineer-in-charge, the paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Engineer-in- charge.
- 38.3 The bidder should also read the **General conditions of contract for Maintenance works 2023 with Amended & modified upto last date of receipt of tender** published by D.G., CPWD, Vidyut Bhawan, New Delhi-110011 which will be a part of the Agreement.
- 38.4 **The bidder shall have to make his own arrangement for housing facilities for staff and labour away from site and shall have to transport the labour to and for between site and labour camp at his own cost. No labour huts will be allowed to be constructed at the site except a few temporary sheds for chowkidars and storekeepers. The decision about how many huts can be allowed for chowkidars and storekeepers at site shall rest with the Engineer-in-charge and the bidder shall have no claim on this account.**

Executive Engineer
CD-4, CPWD
New Delhi

PARTICULAR SPECIFICATIONS

1.0 EARTHWORK:

1.0 The work shall be done in accordance with CPWD Specifications 2019 – Volume-I & II and National Building Code 2016 with upto date correction slips upto last date of submission of bids.

1.1 Excavation shall be undertaken to the width of the Basement / Retaining wall footing including necessary margins for construction operation as per drawing or directed otherwise. Where the nature of soil or the depth of the trench and season of the year, do not permit vertical sides, the contractor at his own expense shall put up the necessary shoring, strutting and planking or cut slopes with or without steps, to a safer angle or both with due regard to the safety of personnel and works and to the satisfaction of the Engineer-in- Charge.

1.2 The contractor shall make at his own cost all necessary arrangements for maintaining water level, in the area where works are under execution low enough so as not to cause any harm to the works or problems in carrying out with the execution and the rates of work shall be considered as inclusive of pumping out or bailing out water, if required, for which no extra payment shall be made. This will include water coming from any source, such as rains, accumulated rain water, floods, leakages from sewer and water mains, subsoil water table being high or due to any other cause what so ever. The contractor shall make necessary provision of pumping, dredging, and bailing out water coming from all above sources and excavation and other works shall be kept free of water by providing suitable system approved by the Engineer-in-Charge.

1.3 Natural ground water table is deep. However, the water level may rise in localized pockets due to rainy season or due to water currents under sub-soil being a hilly area. In order to avoid possibility of basement floor / lower floors of building being getting uplifted/damaged due to water pressure, the contractor shall make arrangement for lowering the ground water table below the proposed foundation level as approved by Engineer-in- Charge. Sub-soil water table shall be maintained at least 50 cm below the P.C.C. level during laying of P.C.C., water proofing treatment, laying of basement raft and beams including filling of earth/sand under the basement floor. The water table shall not be allowed to rise above base of raft level until completion of outer retaining walls including water proofing of vertical surface of walls and back filling along the walls up to ground level and until the structure attains such height to counter balance the uplift pressure. However, the contractor should inspect the site and make his own assessment about sub-soil water level likely to be encountered at the time of execution and quote his rates accordingly. Rate of all items are inclusive of pumping out or bailing out water, if required. Nothing extra on this account whatsoever shall be paid to him unless otherwise specified. The sequence of construction shall be got approved by the Engineer-in-Charge.

1.4 All the major excavation shall be carried out by mechanical excavator. No extra payment shall be made for that.

1.5 The rates are inclusive for all depths & nothing extra shall be paid for additional lift etc.

1.6 The soil under the area has a tendency to slide, if deep cuts are made in rainy season. Additional precautions are required if cutting of soil is being done specially during rainy season. No extra time or hindrance of any kind is permissible on this account.

1.7 The surplus excavated earth (which is not required at site either for filling or raising the ground to achieve desired formation level as per approved architectural drawings) shall be disposed of inside the campus as per direction of Engineer-in-Charge and nothing extra shall be paid on this account.

2.0 CEMENT CONCRETE

The work shall be done in general as per CPWD Specifications 2019, Volume-I & II with date correction slip issued upto last date of submission of bid.

3. R.C.C./C.C. WORK :

- 3.1 **Coarse Aggregate:** As per CPWD Specifications 2019 – Volume-I & II with upto date correction slips upto last date of submission of bids.
- 3.2 **Fine Aggregate:** As per CPWD Specifications 2019 – Volume I & Vol. II with upto date correction slips upto last date of submission of bids.
- 3.3 **Water:** It shall confirm to requirements laid down in IS:456-2000 / CPWD Specifications 2019 – Volume I & Vol. II with upto date correction slips upto last date of submission of bids.
- 3.4 **Cement:** It shall confirm to requirements laid down in IS:456-2000 / CPWD Specifications 2019 – Volume I & Vol. II with upto date correction slips upto last date of submission of bids
- 3.5 **Admixtures / Plasticizers:** - The admixture shall confirm to IS: 9103, wherein required, the admixture of approved quality and approved make only shall be used to attain the required workability. Nothing extra shall be paid for use of admixtures.
- 3.6 **Production of Concrete (Nominal Mix) :** It shall confirm to requirements laid down in IS:456-2000 / CPWD Specifications 2019 – Volume I & Vol. II with upto date correction slips upto last date of submission of bids
- 3.7 **Transportation, Placing and Compaction:** It shall confirm to requirements laid down in IS:456-2000 / CPWD Specifications 2019 – Volume I & Vol. II with upto date correction slips upto last date of submission of bids
- 3.8 **Test Specimen** Three test specimens shall be made for each sample for testing at 28 days. Additional samples may be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the formwork, or to determine the duration of curing, or to check the testing error. Additional samples may also be required for testing samples cured by accelerated methods as described in IS 9103. The specimen shall be tested as described in IS 516.
- 3.9 **Test Results of Samples:** The test results of the sample shall be the average of the strength of three specimens. The individual variation shall not be more than + 15% percent of the average. If variation is more, the test results shall be treated as invalid. 90% of the total tests shall be done at the laboratory established at site by the contractor and remaining 10% in any other laboratory as directed by the Engineer-in-Charge.
- 3.10 **Standard of Acceptance:** i) In case the test results of all the samples are above the characteristic compressive strength, the concrete shall be accepted. ii) In case the test result of one or more samples fails to meet the requirement it shall be accepted if it meets the requirement as laid down in CPWD Specification. iii) Concrete of each grade shall be assessed separately. iv) Concrete is liable to be rejected, if it is porous or honeycombed or its placing has been interrupted without providing a proper construction joint or the reinforcement has been displaced beyond the tolerances specified, or construction tolerances have not been met.
- 3.11 **Concrete is liable to be rejected if it is porous or honey-combed, its placing has been interrupted**

without providing a proper construction joint, the reinforcement has been displaced beyond the tolerances specified, or construction tolerances have not been met. However, the hardened concrete may be accepted after carrying out suitable remedial measures to the satisfaction of the Engineer-in- Charge.

- 3.12 Water Cement ratio for Ordinary RCC work shall not be more than 0.5. This may be kept as specified in CPWD specifications depending upon the mix. Contractor shall use concrete mixture of proper design having arrangement for measuring water for mixing of concrete.]
- 3.13 The consistency, placing, compaction, curing, sampling and testing of cement concrete used in RCC/ Precast RCC work should confirm to CPWD specifications. The testing results of cement concrete should confirm to laid down standard of acceptance.
- 3.14 MEASUREMENT (i) As per CPWD Specifications. (ii) In respect of all projected slabs at all levels including cantilever, retaining wall , coping projection etc. the payment for the RCC work shall be made under the item RCC. The payment for shuttering at the edges shall be made under item of centering and shuttering. Nothing extra shall be paid for the side shuttering at the edge of these coping projection.
- 3.15 TOLERANCES - As per CPWD Specifications.
- 3.16 RATES:
 - (i) The rate includes the cost of materials, labour and T&P, including mixing, placing, transportation involved in all the operations described above except for the cost of centring, shuttering & reinforcement which will be paid for separately.
 - (ii) 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 contractor. 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 without any extra cost. However, for payment, the basis of rate payable to contractor shall be governed by the 28 days cube test results and reduced rates shall be regulated in accordance with CPWD Specifications.

4.0 **SHUTTERING /FORM WORK:**

- a) The work shall be done in general as per CPWD Specifications 2019, Volume-I & II with date correction slip issued upto last date of submission of bid.
- b) Only M.S. centering/shuttering and scaffolding material unless & otherwise specified shall be used for all R.C.C. work to give an even finish of concrete surface. However, marine- ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor to be approved by the Engineer-in-Charge.
- c) Double steel scaffolding having two sets of vertical supports shall be provided for external wall finish, cladding etc. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding platform shall be fixed. Scaffolding shall have steel staircase for inspection of works at upper levels.

- d) Nothing extra shall be paid for the centering and shuttering, circular in shape whenever the form work is having a mean radius exceeding 6m in plan.
- e) In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of R.C.C. shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the Contractor.
- f) As per general engineering practice, level of floors in toilet / bath, balconies, shall be kept minimum 15 mm lower than general floors as required. Shuttering should be adjusted accordingly. Nothing extra is payable on this account. Steel shuttering as approved by the Engineer-in-Charge shall be used by the contractor. Minimum size of shuttering plates shall be 600mm x 900mm except for the case when closing pieces required completing the shuttering panels. Dented, broken, cracked, twisted or rusted shuttering plates shall not be allowed to be used on the work.
- g) The shuttering plates shall be cleaned properly with electrically driven sanders to remove any cement slurry or cement mortar or rust. Proper shuttering oil or de-bonding compound shall be applied on the surface of the shuttering plates in the requisite quantity before assembly of steel reinforcement.
- h) Concreting of upper floor shall not be done until concrete of lower floor has set at least for 10 days but form work and reinforcement can be taken up after the concrete has set at least for three days.
- i) All existing formwork that fails to meet the specifications mentioned above or do not qualify to meet the minimum standards in the view of Engineer-in-Charge shall have to be removed and stacked.

5.0 REINFORCEMENT:

- a) The reinforcement shall be done as per CPWD Specifications 2019, Volume-I & II with correction slip upto last date of submission of bid.
- b) **Reinforcement work** includes all operations including straightening, cutting, bending, welding, binding with annealed steel or welding and placing in position at all the floors with all leads and lift complete as per CPWD Specifications **2019**, Vol.-I & Vol.-II with correction slip upto last date of submission of bid.
- c) The contractor shall provide approved type of support for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings, spacer blocks of required shape and size. Chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. To ensure proper cover, factory made round / rectangular type cover blocks will be used to avoid displacement of bars in any direction and nothing extra will be paid for that.
- d) Reinforcement TMT bars of grade Fe 500D or more to be used in this work.

e) Bar Bending Schedule

The agency shall prepare bar bending schedule drawings as per approved structural drawings and submit to Engineer-in-Charge in advance for approval. The bar bending schedule shall conform to Indian Standard IS 2502-Code of Practice for Bending and Fixing of bars for Concrete Reinforcement. Before execution of work, five copies of these drawings each including for revision will be submitted to Engineer-in-Charge for approval.

6.0 MASONRY WORK:

- a) The masonry shall be done as per CPWD Specifications 2019, Volume-I & II with correction slips upto last date of submission of bid.
- b) Brick masonry with burnt clay F.P.S. (non modular) of class designation 7.5 shall be done. The RCC band shall be provided at sill level and at lintel level over throughout the wall. This thickness of the band

shall be approved by the Engineer-in-Charge or as specified in drawing. The RCC band shall be provided in full width of external wall masonry including thickness of XPS board to increase the strength and compatibility. Autoclave Aerated Concrete Block masonry shall be provided with polymer modified adhesive mortar.

7.0 STEELWORK:

Steel work in general shall be carried out as per CPWD Specifications 2019, Volume-I & II with correction slips upto last date of submission of bid.

REPAIR /REHABILITATION WORKS

1. The contractor shall deploy skilled workers only for Repair/Rehabilitation works. They shall be equipped with special training in manual crafts and possessing knowledge, skills and practical experience in respect of concrete technology and other materials appropriate to the scope, type and difficulty of the repair measures. They must be present on site at all times.
2. The contractor must ensure that the skilled workers employed at site, are informed of and instructed in protection and repair measures at maximum intervals of 3 years so as to enable them to take all measures for the proper execution of the construction measure, including tests and internal supervision as per the latest prevalent technology.
3. The contractor shall advise all workers working with epoxies to avoid contact with eyes and skin, inhalation of vapours, and ingestion. Necessary protective and safety equipments in the form of hand gloves, welders goggles shall be provided by the contractor and used on site.
4. Special watertight shuttering/ formwork shall be provided for special applications involving concrete or mortar, which are more fluid than normal concrete e.g. pumpable concrete, micro concrete etc.
5. The contractor shall provide a scaffolding system with adjustable working platforms for the workmen to work upon any part of the area to be accessed safely and with ease for surface preparation, application of repairs and construction activity.
6. (a) The contractor shall protect the fittings and fixtures and other finished items against their spoiling/ damage to finishes by suitable means such as plywood, tarpoline, plastic sheet etc. during the process of carrying out repairs/shot creating works in a building at his own cost. The items could include windows, doors, glass curtain wall, electrical boxes, points, wire, fans & fittings etc. or other such items. The agency to bear the cost of damaged if any found or reinstate the item to in original state by his own cost. Nothing extra shall be payable to the contractor on this account.
(b) After the work, whole effected area/room must be cleaned by the agency. Any drip of cement or splashes must be cleaned up to satisfaction of Engineer-in-charge. If fails, Rs. 2000/- Each quarters will be levied by the department and will be recovered from the bill.
7. The contractor shall provide a barricading on ground to physically define the boundaries of the site of construction/ repair activity at his own cost for restricted entry of only those involved with the construction work.
8. **Removal of loose/weak cement plaster**
(a) The existing plaster to be indentified for removal by tapping all areas and its boundary shall be marked with a colour marking which shall be approved by Engineer-in-charge.
(b) Remove the plaster manually with the help of chisel and hammers to completely expose the parent masonry or concrete surface, so as not to have any traces of such plaster left behind.
9. **Chipping of unsound/Weak Concrete Material**
a. The weak, loose or carbonated concrete over an area from its surface shall be removed with pneumatically operated or power driven tools by chiseling, chipping etc.
b. Prop and support shall be provided to relive the structural member of stress and strains.
c. Scaffolding with working platform if necessary, shall be erected suitably or provided as mobile. d. Chipping to remove all the unsound and weak concrete material shall be done carefully from the damaged portions of structural members by adopting mechanical or manual means up to the required depth to produce sound concrete surface to a near uniform depth for the repair area.
e. A full depth chiseling and removal of concrete all round reinforcement shall be carried out, in case the concrete in contact and in immediate vicinity of the reinforcement is carbonated.
f. Cleaning of debris and dust shall be carried out from within the chiseled/ chipped areas and its disposal as per direction of the Engineer-in-charge.
g. The concrete around reinforcement bar shall be removed so as to have a clear uniform air gap as per direction of the Engineer-in-charge.
10. **Cleaning Reinforcement of Total Rust i/c from behind reinforcement**
(a) Remove the rust manually from all round the surface along the length of reinforcement using hand tools like chisels, hammers, wire brushes, abrading cloth/ paper etc. This shall be continued manually along the length of the rusted reinforcement till such time that the steel surface is cleared of all rust that could be removed manually.
(b) Chemical rust remover shall be brush applied over the reinforcement surface thoroughly all around the circumference and along the full length of rusted reinforcement. After 24 hours of its applications. The surface shall be cleaned with wire brush and all loose particles removed. It shall be washed with water thoroughly and allowed to dry.

Special Condition for retrofitting and rehabilitation work

Technical Specifications

The technical specifications for rehabilitation of strengthening measures are given below:

1. Bond Coat

The surface over which repair treatment is to be applied must be cleaned. Further, the application of bond coat (cement slurry added with chemical admixture) is essential to provide good adhesion between old to new surface. The surface over which repair treatment is to be applied must be cleaned thoroughly.

Mix

Ordinary Portland Cement (OPC) – 43 grade	: 1 pbw (part by weight)
Bonding Material Such as Nitobond AR of M/s FOSROC or Acrylic polymer like Master EmacoSBR2 of BASF orequivalent	: 1 pbw (part by weight)

Sufficient water shall be used for mixing to obtain consistency like honey. It is suggested that mixing may be done in stirrer type mixer.

Mix proportion	: Mix shall prepared be as per manufacturer's recommendations with plasticised bonding agent.
Consistency	: Honey like consistency
Surface preparation	: The concrete surface shall be thoroughly roughened by chipping, sand blasting (if found necessary), followed by air/water jet cleaning
Bonding agent	: Acrylic polymer based bonding agent or Styrene butadiene co-polymer latex base agent should be mixed with cementas per the manufacturer's recommendation
Recommended thickness	: Approximately 1-2 mm per lay
Recommended manufacturer for bonding agent	: M/s Fosroc Chemicals (India) Pvt. Ltd. M/s Krishna Conchem Pvt. Ltd M/s. Sika India Pvt. Ltd. M/s. Pidilite India Pvt. Ltd. M/s. BASF India Pvt. Ltd. or any equivalent

2. Polymer Modified Mortar/Concrete(PMM/PMC)

Application of polymer (latex) modified mortar is essential to repair the damages on concrete surface including sealing of the surface, which will work as water barrier to surface. It has also been recommended for repairing of localised spalling etc. on the surface. The same shall be used to fill the V grooves in brick masonry, as damaged places. The mix should be prepared on site as per specification given below:

Mix

OPC – 43 grades	: 1 pbw (part by weight)
Well graded Sieved Sand (Zone II)	: 3 pbw (part by weight)
Integral waterproofing compound Conforming to IS:2645-2003 such as Conplast X421IC of FOSROC or equivalent	: 150 ml/ bag cement (50 Kg)
SBR Latex such as Nitobond	: 10% by weight of cement or as per
SBR(Latex) or equivalent	manufacturer's specifications
Water-Cement Ratio	: 0.30-0.35

Mix proportion : The mix should be carried out in ½ bag cement batches so that entire mixed mortar should be used in next 30-45 minutes. Mix should be properly applied over the surface and levelled. Mix shall be prepared as per manufacturer's recommendations with plasticised bonding agent.

Consistency : Trowel able consistency

Surface preparation : The concrete surface shall thoroughly roughened by chipping, sand blasting (if found necessary), followed by water jet cleaning.

Bonding agent : Acrylic polymer based bonding agent should be mixed with cement as per the manufacturer's recommendation

Recommended thickness : Approximately 10-20 mm

Recommended Manufacturers : M/s. BASF India Ltd

M/s. Fosroc Chemicals (India) Pvt. Ltd.

M/s. Krishna Conchem Pvt. Ltd.

M/s. Sika India Pvt. Ltd.

M/s. Pidilite India Pvt. Ltd. . or any equivalent

3. Polymer Modified Cement Grout Mix

OPC – 43 grades : 1.0 pbw

Non shrink high bonding admixture like : 250 g per bag of cement
Cebex 100 or Master flow 150 orequivalent

Nitobond SBR(Latex) of FOSROC or : 0.10 pbw
MasterEmaco SBR 2 of BASF orequivalent

Sufficient water is to be added in cement along with admixture to obtain appropriate mix of colloidal consistency (like honey). It is suggested that mixing may be done in stirrer type mixer.

CEMENTITIOUS / EPOXY GROUTING

In rehabilitation and strengthening of existing structural elements of SPG *building blocks* the properties of hardened grouts are of the great importance in particular, the strength, durability and ability to provide monolithic action. The properties of fresh grouts are important because of inaccessibility of the grouted region to visual inspection. Thus in grouting specifications, much attention has been placed on flow behaviour, bleeding prior to set and strength of the hardened grout along with the nature of void to be grouted.

Grouting can be carried out in four different ways such as (i) manually (ii) by gravity (sometimes by providing hydrostatic head) (iii) under pressure (pumped) and (iv) under vacuum. The schematic diagram of grouting technique under pressure & system has been given in Fig TS-1. Although the surface preparation and main designing of grout formulations are basically remain the same for all these types of grouts. *Pressure grouting is most popular method in repair, strengthening and retrofitting of structures due to its superior, versatility, efficiency and performance.*

In the present case also, pressure grouting against the gravity has been recommended. The grouting of slabs, beams and columns and other places shall also be carried out taking due precaution to avoid entrapped air inside the concrete structural elements. The *specifications as elaborated* have been recommended.

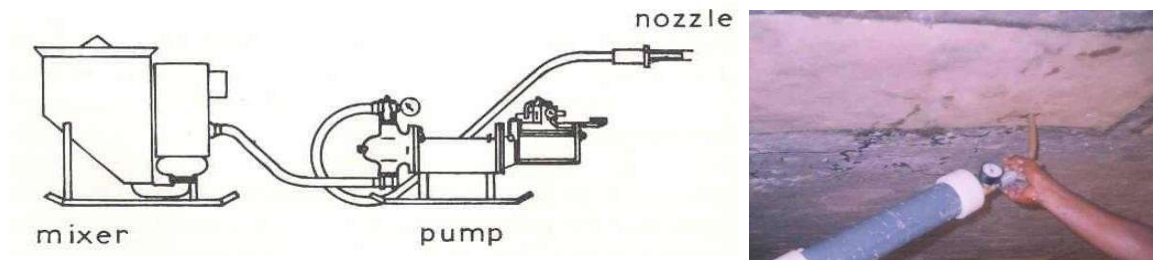


Fig. TS-1: Schematic View of Grouting System

Drilling and fixing of nozzles in Reinforced Concrete structural members:

- *Drilling of Holes:* The hole of 16/18 mm diameter and of varying depth of 75 mm to 200 mm or as per the site requirement / instruction of Engineer in Charge in damaged or honeycombed structural concrete members has to be drilled through rotatory impact hammer drilling machine at the recommended intervals in staggered manner.
- *Cleaning of holes:* Pre-drilled holes must be cleaned properly by air blower for structural concrete members prior to fixing of grout nozzle. It should be ensured that the holes are free from dust and foreign materials.
- *Fixing of Nozzles:* Insert and fix 8-10 mm dia. Aluminium nozzles or non returnable nozzles as approved by Engineer in Charge in cleaned holes. The length of grout nozzles should be strictly as per the site requirement. It should fix in predrilled holes leaving minimum 25 mm gap in holes. External end of nozzles should be machined to receive outlet of grouting gun/ machine. Fix the nozzle into the holes by applying thixotropic epoxy putty as per drawing/ instruction to ensure complete sealing. Cure the system for minimum 48 hrs before grouting. The non-returnable type of grouting nozzles of good quality is preferred.
- *Placing of nozzles:* Nozzles should be inserted @ 500 mm c/c to 750 mm c/c or as per instruction of Engineer in Charge and as per the site requirement. The decision of Engineer in Charge shall be necessary before application of grouting. The nozzle shall be placed only in honeycombed area. The spacing can be lesser as per site requirements.
- *Mixing of materials:* Mix the materials in stirrer type of mixture in required quantities as per technical specifications or manufacturer's instruction by weigh batching. The materials shall be vigorously mixed till material of uniform consistency is formed.
- *Grouting:* Fill the grouting gun/ machine with polymer modified cement grout. Maintain desired pressure in the gun by air compressor or by hydraulic pressure. **Maintain the pressure at exit (4 to 8 kg/ cm²)** by monitoring pressure gauge at exit. Grout the material through prefixed nozzles in the structural elements till the nozzle refuses to accept the grout or it flows from the adjacent nozzle. Seal the nozzle with the epoxy putty after the refusal. Monitor leakages through other nozzles while grouting and seal them as per the requirement. Repeat the process for all the nozzles. Complete the operation within pot life of the material. Ensure no blockage of nozzles before completion of the process of grouting. Therefore, it is very important that nozzles should be fixed in concrete members for minimum 50 mm with epoxy putty having bigger diameter holes.
- *Curing:* Curing should be done for a period of minimum 48 hours.
- *Cutting of Nozzles:* Cut the nozzles by chisel after completion of grouting and curing without damaging structural elements.
- *Cleaning of grouting machine:* Clean the grouting machine properly after finishing epoxy grouting through approved chemicals to avoid blockage in assembly line.

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4. Epoxy Based Grout

The following system is recommended as epoxy grout for RCC in important structural members. The nozzle should be fixed in surface through epoxy mortar and also seal the surface by epoxy mortar.

5. Mix

Araldite GY 257 or equivalent	: 100 pbw
Ardur 140 or equivalent	: 50 pbw

Proportions of mix should be as per manufacturer's specifications/ requirements satisfying engineering properties as per above proportioning.

Specifications

Reference	: ASTM– 881– 87 Type I, Grade I, Class B or C.
Type of Epoxy	: Low viscosity solvent free prepacked resin and hardener, free flow epoxy system after mixing.
Viscosity	: Mix viscosity 1500 MPa max. at 25°C.
Pot life	: Not less than 60 minutes.
Compressive strength after 7 days curing at 25°C	: Not less than 60 N/Sq.mm (MPa)
Compressive strength after 28 days curing at 25°C	: Not less than 60 N/Sq.mm (MPa)
Injection equipment	: Compressed air driven injection pump with suitable syringe system, fitted with suitable pressure gauge. Mixing should be carried out in stirrer type of mixer.
Operating pressure	: 4– 8 Kg/sq.cm
Recommended sources	: M/s Huntsman Advance Materials Pvt. Ltd. M/s. Fosroc Chemicals (India) Ltd. M/s. Krishna Conchem Products Pvt Ltd M/s. BASF (India) Pvt. Ltd. M/s. Dr. Beck & Co. Pvt. Ltd

Free Flow, Non Shrink High Strength MicroConcrete

The high strength, free flow, non shrink grout has been recommended for highly damaged roof slabs etc. after providing additional reinforcement (as if required). The material should be preferably ready to use with minimum thickness of 40 mm. The thickness may vary as per requirement of the site. The application shall be by pouring through formwork until the completion of job. The washed, surface saturated dry, well graded, high density coarse aggregate of good quality (having total index ie. flakiness & elongation should not have more than 30 preferably of basalt and granite) of size 10mm down up to 5 mm may be added as per manufacturer's instruction by 20 to 30% replacement by weight.

Type	: Non shrinkage, free flow high strength cementitious micro concrete
Pot life	: Shall not be less than 1 hr. at 25°C – 35°C
Mixing	: Pan Mixer or any other suitable means as recommended by manufacturer
Mixing Temperature	: Max. Mixing temperature should not be more than 35°C.
Consistency	: Flowable/trowable/pumpable to provide uniform impermeable concrete structure
Requirements	: Shall be applied directly on the prepared surface by pouring through hopper of the formwork continuously until the completion of job
Thickness (Minimum)	: 40 mm
Thickness (Maximum)	: As per site requirement but not more than 75 mm
Surface preparation	: By wet grit blasting / wire brushing / buffing wheel / free from grease, oil, soots etc. or any suitable means
Compressive strength after 7 days curing at 25°C	: Not less than 40 N/Sq.mm (MPa)
compressive strength after 28 days curing at 25°C	: Not less than 60 N/Sq.mm (MPa)

Flexural strength after 28 days curing at 25°C	: Not less than 7.5 N/Sq.mm (MPa)
Formwork	: Watertight formwork
Curing	: Wet curing of 7 days (minimum) or chemical curing by master cure 181 or equivalent
Removal Form work	: As per instruction of manufacturer but in no case should be less than 3 days
Recommended source of micro-concrete	: “Rendroc RG” of M/s FOSROC Ltd. EMACO S 66 T” of M/s. BASF Construction Chemical (India) Pvt. Ltd Dr Fixit Micro concrete of M/s Pidilite Ltd. or any equivalent

5. Modified Cement Mortar for Plaster Mix

OPC – 43 grade	: 1 pbw
Well graded Sieved Sand (ZoneII/III)	: 3 pbw
Integral waterproofing compound Conforming to IS:2645-2003 such as Conplast X421IC of FOSROC or equivalent	: 125 ml per bag cement (50 Kg)
Water-Cement Ratio	: 0.40

6. Epoxy Mortar (repair in Roof Slab / beam & column) Mix

Araldite GY 257 or equivalent : 100 pbw

Aradur 140 or equivalent : 50 pbw

Quartz Sand Mix No. 10 : 600 pbw

Proportions of mix shall be as per manufacturer's specifications/ requirements satisfying engineering properties as per above proportioning.

The average thickness of epoxy mortar should be 20 mm. However, the minimum thickness of epoxy mortar should not be less than 10 mm. Primer coat of Araldite resin and Aradur mix is needed before application of epoxy mortar for good adhesion.

The surface requires thorough sand-blasting abrading with hand wire brush to ensure complete removal of rust particles. However, the cleaning can also be done by water jetting followed by thorough drying with hot air if required. The prerequisites for good adhesion of the coating are cleanness, roughness and dryness of the surface.

7. Epoxy Based Bond Coat/ Primer Coat

One brush coat of the following system is recommended as primer / bond coat on the prepared surface for epoxy mortar to provide good adhesion between old to new surface.

8. Mix

Araldite GY 250 or equivalent : 100 pbw

Aradur 140 or equivalent : 50 pbw

Proportions of mix should be as per manufacturer's specifications/ requirements satisfying engineering properties as per above proportioning.

Specifications

Reference : ASTM-881 – 87 Type I, Grade I, Class B or C.

Type of Epoxy : Low viscosity solvent free pre-packed resin and hardener, free flow epoxy system after mixing.

Viscosity : Mix viscosity 800 MPa max. at 25°C.

Pot life : Not less than 60 minutes.

Application : Applied with brush in two coats before application of epoxy mortar/Polymer modified mortar. Mixing should be carried out in stirrer type of mixer.

Recommended sources: : M/s. Huntsman Advance Materials Pvt. Ltd.
M/s. Fosroc Chemicals (India) Ltd.
M/s. Krishna Conchem Products Pvt. Ltd.
M/s. Pidilite India Pvt. Ltd.
M/s. BASF (India) Ltd.

9. EpoxyPutty

Epoxy putty is recommended for filling the crack opening and fixing of nozzles etc. to seal the system in existing concrete. It may be prepared on site as given below mix proportion or pre-packed epoxy putty of reputed make.

Mix

Araldite GY 257 or equivalent : 100 pbw
Aradur 140 or equivalent : 50 pbw
Slica flour : 400 pbw

Proportions of mix should be as per manufacturer's specifications/ requirements satisfying engineering properties.

Type of putty : Mixed or pre-packed ready to use epoxy putty system

Hardening period : 24 hrs max.

Strength requirement : 40 N/mm² Min. at 7 days

Useable life : 1.00 hr

Recommended Sources : M/s Huntsman Advance Materials Pvt. Ltd.
M/s. Dr. Beck & Co. Pvt. Ltd
EPCO-1010 of M/s Krishna Conchem Products Ltd.
Sikagard 694 F (I) of M/s. Sika India Pvt. Ltd.
M/s. Fosroc Chemicals (India) Pvt. Ltd
M/s BASF Pvt. Ltd

10. Alkaline Rust Converting Primer on Rebar

The application of two coats of alkaline rust converting primer is recommended on the existing rebar surfaces duly cleaned and free from loose materials, shoots, dirt etc before application of anti-corrosive treatment. The alkaline rust converting primer shall be organic polymer based & shall be free from mineral, phosphoric & chromic acids.

Reference	: Confirming to ASTM – B – 117
Type of rust converter	: Organic (Water based acid free)
pH	: 7.5 (minimum)
Specific Gravity	: 1.10 (minimum)
Appearance	: Dark Brown or as manufacturer's specification
Flash Point	: N.A.
Consistency	: Brushable/spray to form a continuous film formation
Requirements	: Shall be applied directly on the prepared surface of ferrous metal to achieve intimate contact with the existing / base metal
Application	: Two coats of alkaline rust converting primer on the existing rebars with time interval of minimum 1 hour between the coats.
Surface Preparation	: Cleaning of existing reinforcement with wire brush/ rotary wire brush to remove rust, loose materials, dirt, shoots etc.
Wet film thickness (WFT)	: 80 microns (Minimum)
Dry film thickness (DFT)	: 50 microns (Minimum)
Recommended sources :	: Feovert of M/s. Krishna Conchem Products M/s. Fosroc Chemicals (India)Ltd. M/s. BASF (India) Ltd. M/s. Dr. Beck & Co. Pvt. Ltd or equivalent

11. Anti-Corrosive Chemical

Anticorrosive Treatment of two coats to existing reinforcement by IPNET RB polymer modified coating or equivalent has been recommended on expose reinforcement after alkaline rust converter. Primer in two coats with time interval of minimum 8 -10 hours between each coat. The application shall be by brush or spray to form continuous film formation

Type : IPN Polymer modified coating (preferably)/ Zinc based (minimum 90%) two parts system with epoxy / phenolic / suitable for application to ferrous surfaces.

Pot life : Shall not be less than 1 hr. at 25°C -35°C

Consistency : Brushable / spray to form a continuous formation

Requirements : Shall be applied directly on the prepared surface of ferrous metal to achieve intimate contact with the base metal

Wet film thickness (WFT) : 150 microns (Minimum)

Dry film thickness (DFT) : 100 microns (Minimum)

Surface preparation : Wire brushing / buffing wheel / solvent free from chlorides or any suitable means

Curing : 45 minutes

Recommended source of Anticorrosive chemical : M/s. Krishna Conchem Products Pvt.Ltd M/s Fosroc Chemicals (India) P.Ltd.
M/s. M C Bauchemie (India) Pvt.Ltd.
M/s. BASF Pvt. Ltd. or any equivalent

Anti-Corrosive Protective Coating System for Reinforcements Methodology:

The application of two coats of polymer modified anti-corrosive treatment of IPNet – RB (Interpenetrating polymer with epoxy / phenolic base) or equivalent or pre packed ready to use to exposed corroded bars and to new reinforcement has been recommended. Anti corrosive treatment is being carried out on existing reinforcement after the application of rust converter and air curing for minimum 6 hours.

Steps

- Clean the existing reinforcement/ new reinforcement with wire brush/ rotary wire brush to remove rust, loose materials, dirt, shootsetc.
- Apply one coat of ready to use alkaline rust converter as primercoat.
- Apply second coat of rust converter after 1 hourminimum.
- Air curing of the same should be for minimum six hours before application of anti corrosivetreatment.
- Mix two component polymer modified anti-corrosive system IP Net-RB Part-A (resin component) & IP Net-RB Part-B (hardener component) in equal proportion by volume or equivalent or pre packed system as per manufacturer'sspecifications.
- The mixing of two component anti-corrosive system should be carried out in a clean plastic container or cleaned stirrer type of mixer. The materials should be mixed thoroughly for 4-5 min. And allowed to remain in the container for another 2-3minutes.
- Apply first coat of the formulation by brush or spray to achieve continuousfilm.
- Apply second coat of formulation with minimum time interval of 8-10 hours between the coats.
- The mix shall be consumed within 30 min. Or as specified by themanufacturer.
- The application of 2nd coat should be applied after 8-10 hours and before 72hours.
- Sprinkle dry sand (silt content not more than 2%) or standard fine sand to provide a rough finish after the 2nd coat, when it istacky.
- Air cures the system for a period of min. 10 hours after the top coat before any subsequenttreatment.
- Remove loose sand grains from the top coating by gentle touching with dry brush after 2-4 hrs.
- All instructions from the manufacturers regarding the use of the product, storage, health precaution of workers, cleaning of tools etc. in conjunction with specifications shall be followed.
- Measurement shall be sq. Mtr. Of repaired/ treated concrete surfacearea.

Important Note:

- Ensure proper mixing for minimum 4-5 minutes.
- Don't apply system on wet surface.
- Apply the treatment on clean surface.
- The both coats should be allowed to dry in air (no water curing).
- Allow both the coats to dry in air with 7 hours as inter coat interval and allow the 2nd coat to dry for 10 hours.
- Further bond coat/ mortar to be applied only after 10 hours of application of system.

Ferrocement Lining /Strengthening

Provide 16-20 mm thick ferrocement, preferably in two layers to be reinforced with one layer of 20-22 gauge ½"x1/2" opening, hot dip galvanized woven square wire mesh held in place by 3 to 4mm dia anchor / nail in RCC / Brick work at 500 mm grid into non shrink polymer mortar filled in a hole of 8mm dia.

Mix

OPC – 43 grade : 1 pbw (part by weight)

Well graded Sieved Sand (Zone II) : 3 pbw

Integral waterproofing compound Conforming to IS:2645-2003 such as Conplast X421IC of FOSROC or equivalent : 125 ml per bag cement (50 Kg)

Water-Cement Ratio : 0.35-0.40

Mix Proportioning : The mixing of in gradients should be done in pan mixtures. The chemical admixture should be added in water to be mixed with mortar. Mortar should be pressed into wire mesh by rubbing and angle penetration technique. The steel gurmala should not be used over the final surface finish. Hard wood float to be used for finishing to ferrocement. Moist curing shall be carried out at least for 10 days

Mixing	: Pan Mixer or any other suitable means as recommended by engineer incharge
Mixing Temperature	: If max. Mixing temperature is more than 35°C
Consistency	: Trowable to provide uniform impermeable surface
Requirements	: Shall be applied directly on the surface after fixing wire meshes. No formwork is required.
Thickness (Minimum)	: 10 mm
Thickness (Maximum)	: As per site requirement but not more than 20 mm
Surface preparation	: By sand/ grit blasting /wire brushing etc. or any suitable means
Compressive strength after 7 days curing at 25°C	: Not less than 20 N/Sq.mm (MPa)
Compressive strength after 28 days	: Not less than 30 N/Sq.mm (MPa)
Curing	: wet curing of 10 days (minimum) or chemical curing by master cure 181 or equivalent

12. ShearConnectors

Material for connector	: Deformed rebar (Fe 500 D or more) or as in the drawing
Diameter of connector	: As specified in drawing
Diameter of holes to be drilled in concrete	: As specified in drawing
Depth of embedment	: As specified in drawing
Cleaning of drilled holes	: Air and water jet
Recommended pull out force	: 300 kg min
Type of equipment for drilling	: Electrically operated rotary-cum- hammering action drilling machine
Recommended drilling Equipment from	Hilti India Ltd. MICO Bosch Ltd. or any equivalent

13. Fe 500 TMT SteelWork

Mechanical Properties	IS 1786 Fe-500 D (%Minimum)
0.2% proof stress	500N/mm ²
Tensile Strength	545 N/mm ²
UTS/YS Ratio	1.08
Elongation	12 %

Fe 500 D steel section weight per meter as per BIS

Size	Median Weight	BIS Range Min	BIS Range Max
20	2.466	2.392	2.540
25	3.854	3.738	3.970

Weight Range per Length (40feet)

Size	Median Weight	BIS Range Min	BIS Range Max
20	30.1	29.2	31.0
25	47.0	45.6	48.4

14. Carbon Fibre Reinforced Polymer (CFRP) wrap for structural strengthening
TechnicalData:

Fibre Type	: Carbon Fibre Reinforced Polymer (CFRP)
Fibre Orientation	: Unidirectional (0°)
Yong's modulus of Elast.	: 230 GPa (Min.)
Specific Gravity of Fibre	: 2.50 (Min.)
Tensile Strength in Uni-Direction	: 2300 MPa (Min.)
Density of Wrap	: 300 gms/ m ² (Min.)
Effective Fibre Sheet Thickness	: Should not be less than 0.40 mm
Elongation at break	0.04

Strengthening structural elements with non-metallic composite fibre wrapping system comprise of uni-directional CFRP sheet (300 GSM) and compatible saturant, by wet lay-up system including,

Surface preparation: Grinding/ moulding concrete substrate, cleaning it with wire brush removing soot, grease , oil, laitance if present, rounding sharp edges to min 25 mm radius etc. complete.

Profiling: Applying compatible primer on prepared substrate, Filling the holes and uneven surface with thixotropic putty etc. complete

Mechanized wetting of fibre sheet: Cutting the fabric to required size. Mixing of saturant and filling in tub area of the saturation machine. Placing the fibre on metallic rods and pass through the rollers of machine and saturant tub ensuring complete wetting (65% fibre volume fraction) of fibres. Remove the fibre on rod and place the new fibre sheet.

Wrapping: Wrapping the fibre sheet to structural element at desired orientation using tamping roller to avoid any air voids etc. repeat the same procedure for multiple layers with the interval of 8 hours.

Sand pasting: Applying second coat of saturant after min. 12 hrs, rectify air voids if any paste the standard/ well graded cleaned river sand on it to make surface rough to take any further finishes

Source of Manufacturer

Toyfo system of M/s FYFE
 Sikadur of M/s Sikaqualcrete
 MBACE SYSTEM of M/s BASF Pvt. Ltd.

The above properties are for longitudinal direction of fibre

15. Hilti RE-500 Rebars

Drilling and fixing copper pins, expansion/ dash fastener of all sizes in all type of masonry for re-baring using two component epoxy system HIT HY 200/ HIT RE 500 of HILTI or equivalent make.

Key technical data

- a. **Base materials:** Concrete (cracked), Concrete (uncracked)
- b. **Base material condition:** Dry, Submerged, Water-filled, Wet
- c. **Cleaning procedures:** Compressed-Air Cleaning
- d. **Anchoring elements:** HAS threaded rods, HIS-N internally threaded inserts, Rebar

Features

- e. Suitable for use in cracked and uncracked concrete with all anchoring elements
- f. Long working time allows greater flexibility in installation
- g. Seismic approval for use in seismic applications
- h. Suitable for anchoring in diamond-cored holes (ICC-ESR)

Applications

- i. Structural connections with post-installed rebar (e.g. extension/connection to walls, slabs, stairs, columns, foundations, etc.)
- j. Anchoring structural steel connections (e.g. steel columns, beams, etc.)
- k. Anchoring secondary steel structures (e.g. balustrades, steel ledgers, etc.)

Substitution of misplaced / missing rebars or couplers.

Form -A

CONSENT LETTER FROM ELIGIBLE ASSOCIATE AGENCY OF SPECIALIZED WORK(S)

Name of work:- Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi..

1. I / We hereby give my consent to associate with M/s, for executing the of work of (Mention specialized work(s)).

2. I / We will execute the work as per specifications and conditions of the agreement and as per directions of the Engineer-in-Charge for the corresponding specialized work(s) till the completion of the work.

3. I / We will be responsible for necessary action to handover the installations and for rectification of defects and repair during the maintenance / warranty period.

4. Also I / We will employ full time technically qualified Engineer / supervisor for the specialized work(s) component of the work as required for the work. I / We will attend inspection of officers of the department as and when required.

Date:

Signature with date of
Main Agency/Contractor

Signature with date of
Associate Specialized Agency

Address

Address

1. Witness with address

(From main contractor side)

2. Witness with address

(From associated agency side)

**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR STRUCTURAL
REPAIR AND REHABILITATION / RETROFITTING WORKS**

This agreement made this _____ day _____ of two thousand and _____ between, (Name of the contractor, hereinafter call Guarantor of the one part) and the PRESIDENT OF INDIA (hereinafter called the Government of the other part).

Whereas this agreement is supplementary to a contract (hereinafter called the Contract) dated _____ and made between the GUARANTOR of the one part and the GOVERNMENT of the other part, whereby the Contractor inter alia, undertook to render the buildings and structures in the said contract recited completely Structural repair and Rehabilitation / Retrofitting works.

And whereas the Guarantor agreed to give a guarantee to the effect that the said structures will remain water / leak proof for Five years from the date of completion of the total project.

Now the Guarantor hereby guarantees that Structural repair and Rehabilitation / Retrofitting works given by him will render the structures completely leak proof and the minimum life of such Structural repair and Rehabilitation / Retrofitting works shall be Five years to be reckoned from the date completion of work.

Provided that the Guarantor will not be responsible for leakage caused by earthquakes or structural defects or misuse of roof or alterations and for such purpose

- a) Misuse of roof shall mean by operation, which will damage roofing treatment, like chopping of firewood and things of the same nature, which might cause damage to the roof.
- b) Alteration shall mean construction of an additional storey or a part of roof or construction adjoining to existing roof, where by roofing treatment is removed in parts.
- c) The decision of the Engineer-in-Charge with regard to cause of leakage/seepage shall be final.

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

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

In witness where of these presents has been executed by the Obligor _____ and by _____ and for and on behalf of the PRESIDENT OF INDIA on the day month and year first above written.

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

1.

2.

Signed for and on behalf of THE PRESIDENT OF INDIA BY _____ in the presence of:

1.

2.

GUARANTEE BONDS/AFFIDAVIT FOR WORK

GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION
IN RESPECT OF WATER SUPPLY AND SANITARY INSTALLATIONS, UPVC WINDOWS, SEWERAGE
TREATMENT PLANT, AND POST TENSIONING WORK

The agreement made this _____ day of _____ two thousand and _____ between
_____ S/o _____ (hereinafter called the GUARANTOR of the one part) and the
PRESIDENT OF INDIA (hereinafter called the Government of the other part).

WHEREAS THIS agreement is supplementary to a contract. (Herein after called the Contract) dated _____
and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby
the contractor inter alia, under look to render the work in the said contract recited structurally stable workmanship
and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain
structurally stable and guarantee against faulty workmanship, finishing, manufacturing defects of materials and
leakages etc.

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable, after the
expiry of maintenance period prescribed in the contract for the minimum life of Five years, to be reckoned from
the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer in charge with regard to nature and cause of defects shall be final.

During the period of guarantee the guarantor shall make good all defects to the satisfaction of the Engineer in
charge calling upon him to rectify the defects, failing which the work shall be got done by the Department by
some other contractor at the guarantor's cost and risk. The decision of the Engineer in charge as to the cost
payable by the Guarantor shall be final and binding.

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

IN WITNES WHERE OF those presents have been executed by the obligator _____ and
_____ by for and on behalf of the PRESIDENT OF INDIA on the day , month
and year first above written. Signed sealed and delivered by OBLIGATOR in presence of :

1. _____
2. _____

SIGNED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY _____ in
the presence of :

1. _____
2. _____

Special condition to comply directive of Hon'ble National Green Tribunal & EIA Guidance Manual

1. The contractor shall not store/dump construction material or debris on metalled road.
2. The contractor shall get prior approval from Engineer-in-charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic/inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
3. The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and/or other similar material to ensure that no construction material dust fly outside the plot area.
4. The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precautions that the vehicles are properly cleaned and dust free to ensure that en-route their destination, the dust, sand or any other particles are not released in air/contaminate air.
5. The contractor shall provide mask to every worker working on the construction site and involved loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
6. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction building and carry of construction material and debris relatable to dust emission.
7. That contractor shall ensure the C&D waste is transported to the C & D Waste site only and due record shall be maintained by the contractor.
8. The contractor shall compulsory use of wet jet in grinding and stone cutting.
9. The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2020.
10. The contractor shall carry out on-Road-inspection for black smoke generating machinery. The contractor use cleaner fuel.
11. The contractor shall ensure that all DG sets comply norms notified by MoEF.
12. The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 kmph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.
13. The contractor shall ensure that the construction material is covered by tarpaulin. The contractor take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.

SPECIAL CONDITIONS of Paint

1. Scrapping shall be shown to the Assistant Engineer and got approved and test checked by him, prior to application of priming and putty on surface.
2. The contractor shall have to remove all splashes after completing each day's work. In case the splashes are not removed by the contractor the same shall be got removed by the Engineer-in-charge at contractor's risk & cost.
3. Material of following make/brand shall be used by the contractor and sample shall be got approved from the Engineer-in-charge.

(a) Synthetic Enamel Paint

Name of the firm	Brand Name
(i) Asian Paint	Apcolite Premium gloss Enamel
(ii) Berger Paints	Luxol Hi - Gloss
(iii) Kansai Nerolac Paint Ltd	Nerolac Synthetic Enamel high Gloss Finish
(iv) ICI Paints	Dulux Gloss
(v) Shalimar Paint	Superlac Hi-Gloss Enamel

(i) PremiumAcrylic Smooth Exterior with Silicone additives paint.

Name of the firm	Brand Name
(i) Asian Paint	Apex UltimaprotekDuralife
(ii) Berger Paints	Weather coat long life 10
(iii) Kansai Nerolac Paint Ltd	Excel Total
(iv) ICI Paints	Dulux Weather Shield
(v) Shalimar Paint	Weather Pro plus

(b) Acrylic Distemper 1st Quality having VOC (Volatile Organic Compound) content less than 50 gm / litre

Name of the firm	Brand Name
(i) Asian Paint	Tractor Acrylic Distemper
(ii) Berger Paints	Bison Acrylic Distemper
(iii) ICI Paints	Maxolite
(iv) Kansai Nerolac Paints	Nerolac Beauty Acrylic Distemper
(v) Shalimar Paint	No.1 Premium Acrylic Distemper

(c) Cement Primer (Interior)

Name of the firm	Brand Name
(i) ICI Paints	Dulex Cement Primer
(ii) Kansai Nerolac paint Ltd.	Nerolac Cement Primer
(iii) Asian Paints	Deco Cement Primer
(iv) Berger Paints	B.P cement Primer

(a) Acrylic Smooth Exterior Paint

Name of the firm	Brand Name
(i) Kansai Nerolac paint Ltd	Suraksha Plus Acrylic exterior emulsion
(ii) Berger Paints	Weathercoat Anti DusttKool
(iii) Shalimar paint	Xtra Tough
(iv) Asian Paints	Apex UltimaProtek

(a) Acrylic Emulsion paint Interior grade having VOC (Volatile organic Compound) less than 50gm/ltr

Name of the firm	Brand Name
(i) Asian	Royale Shyne luxury emulsion
(ii) Berger	Silk Glamor High Sheen
(iii) Nerolac	Impression ultra hd
(iv) ICI	Dulux life master
(v) Shalimar Paint	Superlac Advance

(b) Premium acrylic Emulsion paint Interior grade having VOC (Volatile organic Compound) less than 50gm/ltr

Name of the firm	Brand Name
(i) ICI	Dulux Velvet Touch
(ii) Nerolac	Impressions Kashmir
(iii) Asian Paint	Royal Aspira
(iv) Berger	Silk Breathe Easy
(v) Shalimar Paint	Superlac stay clean

(d) Cement Based Putty

Name of the firm	Brand Name
(i) Birla	Birla Putty
(ii) JK	JK Wall Putty
(iii) Asian	Asian Putty

1. Make/ Brand of any other material / fitting not mentioned above shall also be got approved from Engineer-in-charge in advance before starting the work.
1. In case of material/fittings of make/brand other than mentioned above is to be used due to non-availability or any other reason permission will have to be obtained from Engineer-in-charge in writing.
2. The date of manufacturing and batch no. will be inscribed or printed on pack/containers by manufacturers are acceptable for all the above said materials. Fresh material shall be brought at site as far as possible and materials more than 4 months old from the date of manufacturing will be rejected.
3. The contractor shall have to get the shades/brands of all types of paints, distempers, water proofing cement paint etc. Approved from the Engineer-in-charge before procurement of materials.
4. Nothing extra shall be paid for excess consumption of material in case of material arranged by the contractor. In case of less consumption of material than theoretical requirement, the payment shall be restricted for the area covered theoretically with the quantity actually consumed provided the quality of work is acceptable.
5. **100% quantity** of the material like paint, distemper, Plastic emulsion paint, water proofing cement paint shall be brought in sealed containers & deposited with JE in charge before start of the painting work.
6. All empty containers received after use of Paints, distemper etc. in the work shall be kept at site store till completion of the work and shall not be allowed to be removed without permission of the Engineer-in-charge.

Preferred Make Lists

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
1	Anti-Termite Pesticides - (Imidacloprid)	Bayer, FMC India, Hindustan Insecticides,
2	Cement OPC/ PPC	Ultratech, ACC, Ambuja, JK, Wonder or any other manufacturer approved by the Engineer-in- Charge
3	Cement - White	J.K. White, Birla White
4	Admixture for Concrete	BASF, SIKA, Fosroc, Mapei, MC Bauchemie
5	Reinforcement Steel (Thermo-Mechanically Treated bars CRS (Fe 550 D))	TATA (TISCO), SAIL, RINL, JSPL, JSW
6	Alccofine	Ambuja, Lafarge, Holcim
7	Mechanical Couplers for reinforcement	Sanfield, Halfen, Dextra India, TATA,
8	Ready mix Cement Concrete	Ultratech, Nuvoco, ACC, RMC India, Shri Ram RMC, VK RMC
9	Architecture Expansion/ Seismic Joint System	Migua, Sanfield, Kantaflex, Construction, Specialties, Hercules, DECG (Deevin), Vexcolt
10	Expansion Filler board – Premoulded compressible (Non Bituminous)	Supreme (DURABOARD HD100), STP
11	Concrete Curing Compound	Fosroc, Sika, BASF, MYK Arment, Mapei, ,MC Bauchemie,
12	Core cutting	Hilti, Fisher, Wurth
13	Expanded polystyrene sheet (EPS)	Penguin, Kiwi, E-pack
14	Soil anchor for diaphragm wall	Tata, Usha Martin
15	PVC water stop	Jyoti rubber, Kantflex, Maruti rubber
16	Ready mix polymer jointing cement mortar	Ultra Tech, MYK Arment, Saint Gobain – Weber, SIKA, FOSROC
17	Glass Brick/ Glass Block	SEVES, KIG, Mulia
18	Floor spring, door closer & door automation	Dormakaba, Yale, Geze, Hafele, IR BRITON
19	All type of Door lock including Mortice locks	Dormakaba, Yale, Geze, Hafele, Kich, Godrej

Civil Works Make List		
Sr.No.	Material / Item	Preferred Make
20	SS 304 Door Hardware for D/W (other than Floor spring, Closer, Locks)	Global, Kich, Dormakaba, Yale, Geze, Hafele, IR BRITON, Godrej
21	Customised Door Window Hardware / Joinery Fittings	Kich, Dormakaba, Yale, Geze, Hafele, IR BRITON, Godrej, EPPW , Magnum, Palladium
22	Flush door shutter (With pine block board infill) (All flush doors shall be procured from fully owned factory of the manufacturer and not from JV / outsourced)	Greenply (Green), Century ply (PRO), Duroply (TOWER), Greenpanel, Merino, Jayna
23	Aluminium extrusions (other than system window)	Jindal, Bhoruka, Hindalco,
24	Façade and window system	Schuco, AluK, Technal, SAPA, Lilli, Reynaers, Gutmann
25	Fire stop in curtain wall system	Hilti, 3M, STI, Siderise, Fischer, Astroflame, Lorient
26	Pop out vent for façade and system window hardware	Giesse , Securistyle , Cotswold, Schuco , Technal, Schlegel, Alualpha, Aluk, Reynaers
27	Aluminium glass partition system	Dormakaba, Lindner, Vetro Partizone, Kubik, Bottomline,Otic,Deko,
28	Aluminium operable louver	Technal, Domal, Yogi Glaze, Schuco
29	Air transfer grill	Ruskin, System Air, Trox,
30	Fire rated Glazed door	Saint Gobain, Shakti Horman, Navair, Schott, IHMS, GMP, Pacific
31	Metal Fire rated Doors	Shakti Hormann, Navair, IHMS, Tata Pravesh, GMP, Pacific
32	Wooden Fire rated Doors	Promat, Ardor, Navair, ASES Security, Pacific
33	Fire Rated Hardware & system	Dormakaba, Yale, Hafele, Geze, Hormann, IR BRITON
34	Fire Seal, Fire smoke Seal	3M, Hilti, Dormakaba, Lorient, Kilargo, Raven, Athmer, PROMAT, Fischer
35	Fire rated Glass	Vetrotech Saint-Gobain, Pyroguard, AIS, Schott - Pyran,
36	Fire rated rolling shutter	Shakti Hormann, Gandhi Automation, Avian, Ferco
37	Fire curtain	Orient, Stobich, Pacific, New Green, Kent, Neco
38	Glass shower partition	Dormakaba, Kich, Hafele, Ozone, Jaquar, Godrej
39	Modular Toilet Cubical	Greenlam, Merino, Fundermax,
40	Laminates	Greenlam, Merinolam, Century, Royale Touch, Formica
41	Compact Laminate Sheet	Greenlam, Merino, Fundermax,
42	Urinal Partition made out of laminated compact sheet	Greenlam, Merino, Fundermax,

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
43	Polysulphide Sealant/ PU sealant	Pidilite, Fosroc, Dow corning, Sika, MC-bauchemie, Mapei, MYK Arment
44	Glass, Tinted Glass, High Performance Glass, Reflective Glass, Lacquered/ Back painted glass	Saint Gobain, AIS, Modiguard (Gujarat Guardian), Sisecam, Pilkington
45	Silicone Sealant	Wacker, Dow Corning, GE momentive, Tremco, Mapei, MC-bauchemie, Pidilite
46	Mirrors/ interior mirror (superior quality crystal clear)	Saint Gobain, Modi Guard (Gujarat Guardian), AIS, Sisecam, Pilkington
47	Polyester Powder coating/ PVDF Coating	Jotun, Akzo nobel ,Asian PPG, Nippon
48	Structural Silicon sealant, Pre pigmented Weather Silicone	Dow Corning, Momentive (GE), Tremco, Wacker
49	Wired Glass, Figured/ pattern glass	Gopal Glass, Sisecam, Triveni Glass, Vishwesh Glass, Art n Glass
50	Acoustic Seal / Door seal	Athmer, Lorient, Raven, Dormakaba, 3M, Kilargo, Reddiplex, IR Briton, Hafele
51	PVB/ SGP Laminate Film, Sentry film	Dupont, Saflex, Eastman, Kuraray, XDS, LG, 3M
52	Wood Adhesive	Speedex Fevicol, Araldite, kerakoll, Astral, 3M
53	Frosted film	LG, 3M, Garware, Dupont
54	BMU/ Façade cleaning system	SECO, JKB, MT and T (Madrash tools & tackles)
55	Dry stone cladding undercut anchor	Hilti, Fischer, Blick, BAGI , KEIL
56	Stone sealer	Ardex Endura, MYK Latricrete, Killick Guard Speciality Products Limited, Kerakoll, Akemi, Weber, Wacker, Dow corning
57	Water & Stain repellent coating for stone cladding and stone Flooring	Killick Guard Speciality Products Limited, Dow corning, Wacker, Akemi, MYK Latricrete, Ardex Endura, Weber
58	Aluminum Extruded Sections for framing	Hindalco, Jindal, Bhoruka,
59	Gypsum lightweight Plaster	Saint Gobain Gyproc (Elite-90), Ultra tech, USG Boral, Birla White, Dudhi
60	Ready mix cement plaster	UltraTech, MYK Arment, Saint Gobain – Weber, Birla White, SIKa, Fosroc,

Civil Works Make List		
Sr.No.	Material / Item	Preferred Make
61	Crystalline Integral Waterproofing	Penetron, Kryton, Xypex, Pidilite, MC-bauchemie, MYK Arment, Fosroc, SIKA, Mapei
62	Water Proofing compound	Fosroc, Sika, Master Builder (BASF), Mapei, Pidilite, MYK Arment, MC-bauchemie, Weber, Ardex Endura
63	Water proofing membrane (PVC/ HDPE)/ Water proofing coating (PU/ Polyurea/ Acrylic/ Elastomeric cementitious) / SRI coating/ Pitch PU	Fosroc, Master Builder (BASF), SIKA, Grace, Mapei, MYK Arment, MC-bauchemie, Henkel Polybit, Huntsman
64	Water Stops - Hydrophilic Swellable rubber strip (Non bentonite type)	Fosroc, Master Builder (BASF), SIKA, Grace, Mapei, MYK Arment
65	Polyurethane over deck insulation foam	Master Builder (BASF), Pidilite, Bayer, Lloyd Insulations, MYK Arment, MC-bauchemie, Henkel Polybit,
66	Food grade epoxy coating for water tank	Master Builder (BASF), Fosroc, Sika, MYK Arment , MC-bauchemie, Weber, Mapei
67	Vitrified Tiles (All tiles shall be procured from fully owned factory of the manufacturer and not from JV / outsourced)	RAK, Kajaria, H & R Johnson, Somany, Nitco, Orient Bell
68	Tiles/ Stone fixing Adhesive (Only High performance, polymer modified, non- slip adhesive)	Ardex Endura, MYK- Latricrete, KeraKoll, Saint Gobain - Weber, Mapei
69	Epoxy Grout/ Cementitious Grout for Flooring	Ardex Endura, MYK- Latricrete, KeraKoll, Saint Gobain - Weber, Mapei, Ferrouscrete
70	Polyurethane Concrete Flooring, Epoxy flooring, Self Leveling Flooring	BASF, Fosroc, Ardex Endura, Sika, Mapei, MYK Arment, MC-bauchemie, Saint Gobain – Weber, Ferrouscrete
71	Engineered Wooden flooring and skirting	Mikasa (Greenlam), Junckers, Haro, Tarkett, Havwoods, Parador (HIL), Pergo, Kahrs
72	Raised/ false access flooring system	Unitile, Lindner, Unifloor, Tankaria, Tate access floor systems
73	Solid surface (Corian)	Dupont, Neonnex, LG, Staron-Samsung, Luxor (Durlax)
74	Car deck flooring system	Fosroc, Sika, Mapei, Master Builder (BASF) , Henkel Polybit, Saint Gobain – Weber, MYK Arment,
75	Engineered Marble	HR Johnson, kalinga stone, Nitco, Quastone
76	Rubberized sports flooring (Gym Flooring)	Armstrong, Forbo, Ebaco, LG

Civil Works Make List		
Sr.No.	Material / Item	Preferred Make
77	Stainless Steel	SAIL, Jindal, TATA
78	Structure Steel & Hollow Section –Primary Producers only	SAIL, TATA (TISCO), RINL, Jindal steel & Power (JSPL), JSW
79	Aluminium sections and plate	Hindalco, Jindal, Bhoruka, Balco, as per approved factories for aluminium work.
80	Anchor Fastener, Rebar, Chemical/ Mechanical fastener, Expandable fasteners	Hilti, Fisher, Wurth, Mungo,
81	SS Modular railing system	Kich, Q-Railing, Ozone, JSL Lifestyle, , Dorma, Godrej
82	Non shrink cementious precision (anchoring) grout	Fosroc, Sika, Mapei, Pidilite, BASF, MC-bauchemie
83	Tile trim	Genesis, Surfaces, Construction Specialities
84	Threshold	Genesis, Surfaces, Construction Specialities
85	Cold rolled section (CRS) for framing	TATA, JSW, SAIL, APL Apollo
86	Steel (MS) rolled section & plate	TATA, Jindal, SAIL, RINL
87	Steel hollow sections	APL Apollo, TATA, Jindal, SAIL
88	Aluminum panels	Hindalco, Jindal, Nalco, Bharat Aluminium
89	Cable for Atrium structure	Bharat wire, PFEIFER, Usha Martin, TATA, Asahi
90	Cable connector, panel connector, cable junction, terminal fittings	PFEIFER, Dorma, Spinor
91	White cement based putty	Birla, JK, Asian, Berger, Sakarni
92	Paint - Plastic Emulsion (Internal)	Asian, Akzonoble, Berger Paints, Jotun, ICI Dulux, Nerolac
93	Paint - Synthetic Enamel	Asian, Akzo Nobel (Dulux), Berger, Nerolac
94	Paint - Acrylic Emulsion (Exterior)	Asian Paints, Akzo Nobel (Dulux), Jotun, Berger, NEROLAC
95	Paint - Texture Paints (Interior)	Oikos, SKK, Asian (Nova colour), Ultratech, Armourcoat, Dulux
96	Paint - PU & epoxy paint and primer	Asian PPG, ICI Dulux, Berger, Jotun, NIPPON, Nerolac
97	Paint – Anti carbonation paint	Fosroc, Pidilite, BASF, Asian, Sika, MYK Arment, MC- bauchemie, Berger
98	PU Polish for wood work	ICI Dulux, MRF, Asian, Berger, JOTUN, Nerolac, ICA
99	Gypsum ceiling system (plain/ perforated),	Saint Gobain, USG Boral, Knauf Danoline, RK Ceilings

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
100	Dry wall Gypsum partition/ paneling system for toilet, Gypsum wall paneling	Saint Gobain, USG Boral, Knauf Danoline,
101	Aluminium/ Metal Ceilings (Baffle and Open cell ceiling)	Armstrong, Hunter Douglas, Durlum, Lindner, RK Ceilings,
102	Plywood (All plywood shall be procured from fully owned factory of the manufacturer and not from JV / outsourced)	Greenply, Century, Duroply, Archidply, Merino, Jayna
103	Veneer	Greenlam (Decowood), Turakhia, Century, Duroply, Greenply
104	Acoustic panel	Silence Panel, Anutone, Techno Ceiling, Rockworth, KnaufArmstrong,
105	Cement Fiber Board/ Cement bonded particle board	Everest, NCL Industries (Bison Panel), Shera Board, Visaka Industries (V- Next), Century (Zykron), Saint Gobain
106	GI suspended ceiling grid system & Close/ C stud framing system	Saint Gobain, USG Boral, Knauf Danoline
107	Access panel in False ceiling system	Saint Gobain, USG Boral, Knauf Danoline
108	Rock wool/ Glass wool Insulation	UP Twiga, Rockwool India, Roxul Rockwool India, Lloyd, Siderise
109	Soft board	Jolly board, Kanpur Company (Kani Soft board)
110	Polycarbonate sheet/ skylight	Tuflite, Gallina India, Dan Pal, Lexan, DPI Daylighting, SUNPAL
111	Galvanized/ Galvalume Roofing sheet and accessories	TATA, Everest, JSW, MULTICOLOR , INTERARCH, Lloyd
112	Pre cast Concrete Landscape elements, gratings, kerb, Drain cover	Vyara, Dalal tiles, Baakas (OTLO), Unistone, KK Manholes & Gratings, KJS Concrete, Pavecon, Chelsea
113	Precast concrete tiles, Interlocking Paving, Brick paver, Grass/ Grid Pavers	Vyara, KK Pre cast, Dalal Tile, Unistone, Ultra, Super, Teraferma, Nitco pavers, KJS Concrete, Pavecon, Chelsea
114	C & D waste precast elements	GM Concrete, IL & FS
115	FRP covers	Thermodrain, HP, Fibrocast, Everlast Composites Private Limited, Dudhi
116	Tactile warning studs/strips	Eminent Overseas, Jindal (JSW), J B Enterprise, Prarthana Technical Services Pvt. Ltd., Canon (Sundaram Group), Kich, Genesis

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
117	GGBS	Tata, JSW, Heidelberg
118	Fire Stopper/ Fire Packing/ Cable coating/ sealant	Global, Hilti, 3M, OBO, PROMAT, FISCHER, Astroflame, Lorient
119	Furniture hardware (except for furniture of yellow category)	Hafele, Hettich, Kich, Global, Dormakaba, Grass, Godrej,
120	Kitchen/ pantry unit hardware and accessories	Hafele, Hettich, Global, Grass, Kich, Godrej,
121	Aluminum anodized profile handle	Global, Hafele, Hettich, Grass, Ebco
122	Foam/ Rubber (except for furniture of yellow category)	Geo foam, Sleep-well, Century
123	Glides (except for furniture of yellow category)	Custom made, Hettich, Ebco, Hafele
124	Castors for Chair (except for furniture of yellow category)	Supo, Ebco, Flyrail
125	Leveler for Table (except for furniture of yellow category)	Hettich, Ebco, Hafele
126	Buffer (except for furniture of yellow category)	Ezee, Ebco, Hettich, Hafele
127	Glass & Mirror	Saint Gobain, AIS, Modi
128	Wood Polish	Asian, MRF, ICA , Monocoat, Jotun, Nerolac, Jivanjor, ICI Dulux
129	Laminate Sheet	Greenlam, Merino, Formica, Century, Royale Touch, Jayana doors of jain wood Industries
130	Decorative Veneers	Green Decowood, Turakia, Century, Greenply, Duroply
131	Plywood	Green, Century, Archidply, DUROPLY
132	Adhesives (For Furniture work)	Fevicol, Araldite, kerakoll, Astral, 3M, Jayna
134	Exterior/Interior Grade – MDF /Particle board	Greenpanel, Action Tesa, Century
135	Solid surface (Corian)	DuPont, LG ,Samsung, Staron, Luxor (Durlax)
136	Mirror frames	Hafele, Hettich, Ebco

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
137	Curtains/ Window treatments	Mac lifestyle, Marvel, Vista, Hunter Douglas, D Decor
138	System for Motorized Curtain	Somfy, Forest motorized systems, Hunter Douglas, Toso company limited
139	Readymade fabrics	Atmosphere, D Décor, Pure, R.R. Décor, Jagdish store (Delhi), Response Fabrics
140	Carpets	Jaipur rugs, Obettee, Taj International, Cocoon carpets, Qaleen carpets
141	Polyester fiber	Recron (Reliance)
142	Glass fiber mesh	Gyproc, USG Boral, SIKA
143	NUTS,BOLTS & SCREWS FOR FURNITURE/ DOORS/W INDOWS	GKW, KUNDAN, PRIYA, ATUL, EBCO, HAFELE, HETTICH, HILTI
144	GLASS PROCESSOR FOR MAKING DGU/ TOUGHENING	AIS (ROORKEE), ART N GLASS, GSC (NOIDA), KAENAL GLASS (BHIWADI), SAINT GOBAIN (CHENNAI)
145	GLASS MOSAIC TILES	PALLADIO, BISAZZA, ITALIA
146	DECKING STEEL SHEET	LYSAGHT EYZYDEK OF TATA, LLOYDS, JSW
147	ACOUSTIC FLEECE FOR FALSE CEILING TILES	SOUNDTEX, ACOUSTIMAX
148	THERMOPLASTIC PAINT/ROAD MARKING PAINT	NEROLAC, ASIAN, SHALIMAR,BERGER, STP LTD
149	PVC WATER STORAGE TANKS	SINTEX, SHEETAL, SUPREME, POLYPLAST
150	CPVC/UPVC PIPES & FITTINGS	ASHIRWAD, FINOLEX, SUPREME, ASTRAL
151	HDPE PIPE AND FITTINGS	SOSUN, SUPREME, JAIN IRRIGATION, KISAN
152	EXPOSED PVC CISTERN	COMMANDER, HINDWARE, PRAYAG, JAQUAR
153	CONCEALED PVC CISTERN	KOHLER, GROHE, Geberit, JAQUAR
154	C.P. BOTTLE TRAPS	CAMRY JAQUAR, ROCA, KOHLER, GROHE
155	Aluminium Hardware for Aluminium Doors and Windows	Global, Giesse, Schuco, Alualpha, Roto, Reynaers, Dr. Hann, Securistyle,
156	Bitumen	Indian Oil, Hindustan Petroleum, Bharat Petroleum
157	Stainless Steel Wire Mesh	Sterling Enterprises, Trimurty Welded Mesh, Global, Jindal SS

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
158	Prelaminated MDF Board	Green Penelmax, Marino, Veer, Century
159	Block Boards , plyboards	Duro, Century, Greenlam, Jayna
160	Polyester Powder Coating Shades	Nerolac, Berger, J&N
161	Dash/ anchoring Fasteners	Hilti, Fischer, Canon, Bosch, Wurth
162	Friction Stay Hinges	Hettich, Kich, Godrej, Dorma
163	EDPM Gasket	Hanu, Anand
164	Ceramic Tiles (All tiles shall be procured from fully owned factory of the manufacturer and not from JV / outsourced)	RAK, Kajaria, H & R Johnson, Nitco, Somany
165	Terrazzo tiles	Nitco, Unistone, K.K. Manhole
166	Chequered Tiles	Nitco, Unistone, K.K. Manhole, Dalal
167	Cement Concrete tiles	Nitco, Unistone, Dalal
168	Clay Tile on Roof	Kenzei, Johnson
169	Water proofing Cement paint	Snowcem, Berger, Nerolac, ICI India Ltd., Asian paints.
170	Fire Clay Sink & Drain Board	Parryware, Hindware, Cera
171	Soil Waste & Vent Centrifugal Cast Iron pipes & Fittings	Neco, RIF, SKF, HIF
172	LA (CI) pipe	Electro Steel, Kesoram
173	G.I. pipes and MS Pipes	TATA, Jindal (Hissar), Prakash Surya
174	Mazza AC Pipe	A Infrastructure Ltd, Apurva Vinimay Pvt. Ltd., Koanoraia Sugar Gen Mfg Company
175	G.I. Fittings (malleable Cast Iron)	Unik, ICS
176	Gunmetal Valves (Full way check valves.)	Leader, Zoloto, Sant
177	Stone ware pipes and Gully traps	Perfect, Parry, Anand
178	PVC Door / Windows	Syntex, Rajshri, Jain Doors, Jayna
179	MS Pipe	Kirloskar, Electro, Steel

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
180	C.I. Double Flanged Sluice Valves	Kirloskar, IVS, Burn
181	C.I. Double Flanged non return Sluice Valves	Kirloskar, Burn
182	C.I. Manhole Covers	RIF, NECO, SKF
183	S.S Autoclose Hinges	Hettich, Earl-Bihari,Kich, Dorma, Global, Godrej, Hafele,
184	Ball Valves	Zoloto, IBP, Arco
185	Butterfly Valves	Audco, Zoloto
186	Unglazed Vitrified Heavy Duty Tiles	Johnson (Endura), Somany (Dura Stone), Kajaria, Nitco
187	Spider Fittings	Dorma, Sevox, Hettich, Hafele
188	Mineral Fiber False Ceiling	Armstrong or equivalent as per ISI code
189	APP	Bitumat Co. ltd. STp, Dermabit Technow, Nicol, Trochtar
190	FRP Doors & Frames	Ashoo Model Arts, Selected product co. Fiberways Jayna Doors, Jain Wood Industries, Jain Doors Pvt. Ltd. FRP Bhatt
191	Indian / European WC, Wash Basin and other sanitary Installations	Hindware, Cera, Jaquar,Kholar
192	C.P. Brass fittings	Global, Jaquar ,Kohler, Grohe, Player
193	Water proofing compound	CICO, IMPERMO (By Snowcem India Ltd.) PIDILITE, Dura Build, Fosroc
194	Stainless Steel Sink (SS 304)	Jayna, Neelkanth, Nirali
195	Plaster of Paris	Shree ram, Adhar Shree, Sakarni, Decotouch
196	Aluminium Hinges	Global, Classic, Argent, Crown,
197	Galvanised / Galvalume profile Sheets	Tata, Jindal, Kamdhenu
198	Premium Exterior Paint With Silicon Additives	Asian (Apex-Ultima), Berger (All guard), Nerolac (Suraksha Advance), ICI India Ltd. (Weather Shiled)
199	Acoustic Foldable Movable Partitions	Hafele, Dorma, Azazo, ASSA ABLOY
200	Door fittings	Global, Hafele, Dorma, Hardwyn, Godrej, Dorset
201	Steel primer	Berger, Nerolac, ICI India Ltd. Asian paints

Civil Works Make List		
Sr. No.	Material / Item	Preferred Make
202	Wood Primer	Berger, Nerolac, ICI India Ltd. Asian paints
203	Stainless steel railing	Connect Arch Pvt. Ltd., Jindal S.S. Ltd., Geze, ICICH Inds. Dorma, D-Line, kitch
204	Stainless steel hard ware fittings	Global, Dorma, Hafele, Godrej, Geze, Dorset,
205	Hermitically Sealed Performance glass and toughened glass	Saint Gobin, Asahi, Pilkington, Viracon (Processed by the theme or their approved processors)
206	Epxoy paint	Berger, Nerolac, ICI India Ltd. Asian paints
207	Textured Exterior Paint	Ultra-Tech (MAS) Texture paint, Spectrum, Heritage, Asian, Dulux (AkzoNoble)
208	Calcium Silicate false ceiling i/c frame work	Aerolite, Hilux, Armstong
209	Glass Reinforced concrete Jali	Unistone, Dalal, Ultra Tech
210	AAC Blocks	Finecrete, Ultra Tech, ACC, JK, SHREE CEMENT
211	D.I. Pipes	Electro Steel, Jindal Saw, Tata metal
212	uPVC Window	Fenasta, Rehau, Ncl-Wintech, Encraft
213	uPVC door window hardware	Kinlong, Pulse, Hoppe, Coar,stac
214	Marble finishing texture interior grade paint	Ultra-tech texture paint, OIKOIS, Armor-Coat
215	MS Pipe, Tubes, Bars, Flats, Angle, T-Section	SAIL, TATA, RINL, JINDAL, JSPL, JSW
216	Aluminum Fittings	Global, Classic, Argent, Crown
217	Tactile tiles	Johnson, kajaria, NITICO
218	Factory Made Aluminium Doors & Windows/ ventilator	Axsys Solutions (Alliance), Mahavir Aluminium(Bhiwadi), AALCO, Alpro
219	Extruded hollow clay/Terracotta ventilated rainscreen tiles	Clayton, Hunter Douglas, Wienerberger
220	FRP Doors & Frames	Ashoo Model Arts, Selected Product Co., Fiberways, Jayana doors of jain wood Industries, Jain Doors Pvt. LTD.
221	Repair /Rehabilitation Chemicals	Pidilite, Choksesy, Fosroc, Cico, Asian Paint Smart Care, Sika.

Note :-

All materials and products shall conform to the relevant standards (IS, EN, BS, ASTM, ISO, AS/NZS) and shall be of approved make and design

The Contractor shall procure and provide all the materials from the manufacturers / suppliers as per the above 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. Nothing extra shall be payable on this account.

SCHEDULE OF QUANTITY

Name of work : Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.

S.No.	Description of items	Qty.	Unit	Rate	Amount
1	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge.				
1.1	All kinds of soil.	60.00	cum	177.50	10650.00
2.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
2.1.1	1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	6.00	cum	7878.50	47271.00
2.1.2	1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size)	4.00	cum	6518.60	26074.00
3	Providing and laying cement concrete in retaining walls, return walls, walls thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., up to floor five level, excluding the cost of centering, shuttering and finishing:				
3.1	1:2:4 (1 Cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	4.00	cum	9895.20	39581.00
4	Centering and shuttering including strutting, propping etc. and removal of form for :				
4.1	Foundations, footings, bases of columns, etc. for mass concrete	16.00	sqm	392.15	6274.00
4.2	Suspended floors, roofs, landings, balconies and access platform.	374.00	sqm	927.25	346792.00
4.3	Lintels, beams, plinth beams, girders, bressumers and cantilevers	262.00	sqm	736.40	192937.00
4.4	Edges of slabs and breaks in floors and walls				

4.4.1	Under 20 cm wide	552.00	metre	208.55	115120.00
5	Encasing rolled steel sections, in beams and columns, with cement concrete 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources) including centering and shuttering complete but , excluding cost of reinforcement.	10.00	cum	16089.40	160894.00
6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
6.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	1440.00	kg	107.85	155304.00
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
7.1	Thermo-Mechanically Treated bars	10560.00	kg	107.85	1138896.00
8	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge; for the following grades of concrete. Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.				
8.1	All works above plinth level upto floor V level.				
8.1.1	Concrete of M25 grade with minimum cement content of 330 kg /cum	88.00	cum	9860.40	867715.00
9	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :				

9.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	71.00	cum	9105.95	646522.00
10	Providing and fixing expansion hold fasteners on C.C. /R.C.C./Brick masonry surface backing including drilling necessary holes and the cost of bolt etc complete.				
10.1	Wedge expansion type				
10.1.1	Fastener with threaded dia 12 mm	144.00	each	61.70	8885.00
11	Providing wood work in 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 (hold fast lugs or dash fastener shall be paid for separately).				
11.1	Kiln seasoned and chemically treated hollock wood	0.10	cum	83378.05	8505.00
12	Providing and fixing 19 mm thick both side balancing lamination factory pressed BWP grade marine ply as per IS : 710 of approved brand boxes, shelves, racks, almirah, cupboard and drawer etc. including necessary nails, screws etc. complete as per direction of Engineer-in- charge.	61.00	sqm	2593.15	158182.00
13	Providing and fixing stainless steel fancy handle of approved make fixed with SS screws etc. complete as per direction of Engineer-in-charge.				
13.1	200mm	96.00	each	186.65	17918.00
14	Providing and fixing stainless steel soft closing spring hinges at 0 degree hinges (hydraulic type) of approved make/brand to cupboard shutters with full threaded steel screws including making necessary recess in board and finished etc. complete as per direction of Engineer-in-charge.	96.00	each	272.00	26112.00
15	Providing and fixing stainless steel soft closing heavy type telescopic drawer channels of approved make 500 mm long with screws etc. complete as per direction of Engineer- in-charge.	96.00	one set	885.10	84970.00
16	Providing and fixing glazed shutters for doors, windows and clerestory windows using 4 mm thick float glass panes (weight not less than 10 kg per sqm) fixing with ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws.				
16.1	Second class teak wood				
16.1.1	30 mm thick	22.00	sqm	4523.40	99515.00

17	Extra for providing ISI marked Stainless Steel butt hinges instead of M.S. pressed butt hinges bright finished of required size with necessary screws. (Shutter area to be measured).	16.00	sqm	193.55	3097.00
18	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :				
18.1	2nd class teak wood				
18.1.1	50 x 20 mm	80.00	metre	271.75	21740.00
19	Providing and fixing aluminium die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm), with necessary accessories and screws etc. complete.	48.00	each	1124.85	53993.00
20	Providing and fixing chromium plated brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.	48.00	each	998.35	47921.00
21	Providing and fixing factory made Fiberglass Reinforced plastics (F.R.P.) chajja 4 mm thick of required colour, size and design made by Resin Transfer Moulding (RTM) Machine Technology, resulting in void free compact laminate in single piece, having smooth gradual slope curvature for easy drainage of water and duly reinforced by 2 nos vertically and 1 nos horizontally 50x2 mm thick M.S. flat with 12 mm in built hole for grouting on the existing wall along with the 50 mm flanges duly inserted and sealed in the wall complete in one single piece casted monolithically, including all necessary fittings . The FRP Chajja should be manufactured using unsaturated Polyester resin as per IS: 6746, duly reinforced with fibre glass chopped strand mat (CSM) as per IS: 11551 complete with protective Gel coat U/V coating on Top for complete resistance from the extreme of temperature, weather & sunlight (Only plan area of chajjas shall be measured for making payment).	97.00	sqm	5207.45	505123.00
22	Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.				
22.1	With 2nd class teak wood beading 62X19 mm	22.00	sqm	1597.15	35137.00

23	Providing and fixing bright /matt finished Stainless Steel handles of approved quality & make with necessary screws etc all complete.				
23.1	125 mm	36.00	each	119.20	4291.00
24	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	720.00	kg	133.70	96264.00
25	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6 mm angle iron and 3 mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.				
25.1	Using M.S. angels 40x40x6 mm for diagonal braces	13.00	sqm	5804.35	75457.00
26	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.				
26.1	Hot finished welded type tubes	31591.00	kg	194.40	6141290.00
27	Providing and fixing mild steel round holding down bolts with nuts and washer plates complete.	200.00	kg	97.20	19440.00
28	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				
28.1	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	200.00	kg	172.60	34520.00
29	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes,channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	134.55	KG	772.40	103926.00

30	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :				
30.1	25 mm thick	28.00	sqm	1948.25	54551.00
31	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	4.00	sqm	2354.70	9419.00
32	Providing and laying Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.				
32.1	Double charge vitrified tile polished finish of size				
32.1.1	Size of Tile 600 x 600 mm	272.00	sqm	1453.65	395393.00
33	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
33.1	Polished Granite stone slab of colour Black, Cherry/Ruby Red or equivalent	72.00	sqm	4481.3	322654.00
34	Providing & fixing UV stabilised fiberglass reinforced plastic sheet roofing up to any pitch, including fixing with polymer coated 'J' or 'L' hooks, bolts & nuts 8mm dia. G.I plain/bitumen washers complete but excluding				

	the cost of purlins, rafters, trusses etc. The sheets shall be manufactured out of 2400 TEX panel rovigis incorporating minimum 0.3% ultra-violet stabiliser in resin system under approximately 2400 psi and hot cured. They shall be of uniform pigmentation and thickness without air pockets and shall conform to IS 10192 and IS 12866. The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified.				
34.1	2 mm thick flat	8.00	sqm	1245.65	9965.00
35	12 mm cement plaster of mix :				
35.1	1:6 (1 cement: 6 Coarse sand)	474.00	sqm	343.65	162890.00
36	15 mm cement plaster on the rough side of single or half brick wall of mix :				
36.1	1:6 (1 cement: 6 Coarse sand)	507.00	sqm	395.35	200442.00
37	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:				
37.1	New work (Two or more coats applied @ 1.43 Itr/10 sqm over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm)	1005.00	sqm	171.10	171956.00
38	Applying priming coat:				
38.1	With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works	200.00	sqm	67.40	13480.00
39	Painting (two or more coats) on rain water, soil waste and vent pipes and fittings with synthetic enamel paint of approved brand and manufacture and required colour over a priming coat of approved steel primer on new work.				
39.1	100 mm diameter pipes	150.00	metre	82.00	12300.00
40	Rough cast plaster upto 10 m height above ground level with a mixture of sand and gravel or crushed stone from 6 mm to 10 mm nominal size, dashed over and including the fresh plaster in two layers, under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand) and top layer 10 mm cement plaster 1:3 (1 cement : 3 fine sand) mixed with 10% finely grounded hydrated lime by volume of cement.				
40.1	Ordinary cement finish using ordinary cement	394.00	sqm	886.60	349320.00

41	French spirit polishing :				
41.1	Two or more coats on new works including a coat of wood filler	75.00	sqm	446.25	33469.00
42	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	1560.00	sqm	156.05	243438.00
43	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.				
43.1	Two coats	1660.00	sqm	142.80	237048.00
44	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.				
44.1	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre	1560.00	sqm	73.95	115362.00
45	Providing and fixing 150 mm bright finished floor brass door stopper with rubber cushion, necessary brass screws etc. to suit shutter thickness complete	72.00	each	271.45	19544.00
46	Providing and fixing double scaffolding system (cup lock type) on the exterior side, up to seven story height made with 40 mm dia M.S. tube 1.5 m centre to centre, horizontal & vertical tubes joining with cup & lock system with M.S. tubes, M.S. tube challies, M.S. clamps and M.S. staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for the required duration as approved and removing it there after .The scaffolding system shall be stiffened with bracings, runners, connection with the building etc wherever required for inspection of work at required locations with essential safety features for the workmen etc. complete as per directions and approval of Engineer-in-charge .The elevational area of the scaffolding shall be measured for payment purpose .The payment will be made once irrespective of duration of scaffolding. Note: - This item to be used for maintenance work judicially, necessary deduction for scaffolding in the existing item to be done.	826.00	sqm	338.25	279395.00

47	Disconnecting damaged overhead/terrace PVC water storage tank of any size from water supply line and removing from the terrace including shifting at ground level as per direction of Engineer-in-charge.	4.00	each	433.75	1735.00
48	Dismantling W.C. Pan of all sizes including disposal of dismantled materials i/c malba all complete as per directions of Engineer-in-Charge.	6.00	each	134.10	805.00
49	Dismantling 15 to 40 mm dia G.I. pipe including stacking of dismantled pipes (within 50 metres lead) as per direction of Engineer-in-Charge.	100.00	metre	3.25	325.00
50	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.				
50.1	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	4.00	cum	2434.25	9737.00
50.2	Nominal concrete 1:4:8 or leaner mix (i/c equivalent design mix)	2.00	cum	1503.60	3007.00
51	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	60.00	cum	3551.25	213075.00
52	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
52.1	In cement mortar	57.00	cum	2060.20	117431.00
53	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead :				
53.1	Of area 3 sq. metres and below	30.00	each	367.20	11016.00
54	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50 metres lead.	200.00	Kg	5.65	1130.00
55	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.				
55.1	For thickness of tiles 10 mm to 25 mm	272.00	sqm	73.40	19965.00

56	Demolishing brick tile covering in terracing including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.	109.00	sqm	105.35	11483.00
57	Demolishing mud phaska in terracing and disposal of material within 50 metres lead.	109.00	cum	914.30	99659.00
58	Dismantling C.I. or asbestos rain water pipe with fittings and clamps including stacking the material within 50 metres lead :				
58.1	100 mm dia pipe	45.00	metre	78.00	3510.00
59	Dismantling of flushing cistern of all types (C.I./PVC/Vitrious China) including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead.	6.00	each	112.05	672.00
60	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	507.00	sqm	54.65	27708.00
61	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.	300.00	cum	263.95	79185.00
62	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.				
62.1	Flexible pipe				
62.1.1	32 mm dia	6.00	each	119.55	717.00
63	Providing and fixing soil, waste and vent pipes :				
63.1	100 mm dia				
63.1.1	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989	174.00	metre	1180.75	205451.00
64	Providing and filling the joints with spun yarn, cement slurry and cement mortar 1:2 (1 cement : 2 fine sand) in S.C.I./ C.I. Pipes :				
64.1	100 mm dia pipe	72.00	each	198.15	14267.00
65	Providing and fixing M.S. holder-bat clamps of approved design to Sand Castiron/cast iron (spun) pipe embedded in and including cement concrete blocks				

	10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including cost of cutting holes and making good the walls etc. :				
65.1	For 100 mm dia pipe	72.00	each	362.85	26125.00
66	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
66.1	100 mm dia				
66.1.1	Sand cast iron S&S as per IS - 3989	24.00	each	705.20	16925.00
67	Providing and fixing plain bend of required degree.				
67.1	100 mm dia				
67.1.1	Sand cast iron S&S as per IS - 3989	18.00	each	570.05	10261.00
68	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
68.1	100x100x100 mm				
68.1.1	Sand cast iron S&S as per IS - 3989	12.00	each	925.70	11108.00
69	Providing and fixing terminal guard :				
69.1	100 mm				
69.1.1	Sand cast iron S&S as per IS - 3989	12.00	each	506.00	6072.00
70	Providing and fixing collar :				
70.1	100 mm				
70.1.1	Sand cast iron S&S as per IS - 3989	12.00	each	513.15	6158.00
71	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :				
71.1	100 mm inlet and 100 mm outlet				
71.1.1	Sand Cast Iron S&S as per IS: 1729	6.00	each	1683.55	10101.00

72	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
72.1	20 mm nominal outer dia Pipes	60.00	metre	335.00	20100.00
72.2	25 mm nominal outer dia Pipes	72.00	metre	401.55	28912.00
72.3	32 mm nominal outer dia Pipes	48.00	metre	518.75	24900.00
73	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc.				
73.1	20 mm nominal dia Pipes	12.00	metre	537.60	6451.00
74	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
74.1	25 mm nominal bore	6.00	each	622.40	3734.00
74.2	32 mm nominal bore.	6.00	each	689.60	4138.00
75	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
75.1	25 mm nominal bore	8.00	each	464.05	3712.00
76	Providing and fixing uplasticised PVC connection pipe with brass unions :				
76.1	30 cm length				
76.1.1	15 mm nominal bore	24.00	each	85.00	2040.00
77	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	8000.00	per litre	11.00	88000.00

78	Providing and fixing aluminium work for doors, windows, ventilators and partitions 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 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. (Glazing, paneling and dash fasteners to be paid for separately) :				
78.1	For fixed portion				
78.1.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	271.00	Kg	530.90	143874.00
78.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
78.2.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	59.00	Kg	634.45	37433.00
79	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of engineer-in-charge.				
79.1	Pre-laminated particle board with decorative lamination on one side and balancing lamination on other side	5.00	sqm	1139.30	5697.00
80	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):				
80.1	Pre-laminated particle board with decorative lamination on one side and balancing lamination on other side	5.00	sqm	1176.80	5884.00

81	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations:				
	(a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment.				
	(b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.				
	(c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge.				
	(d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement : 4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep.				
	(e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test.“All above operations to be done in order and as directed and specified by the Engineer-in-Charge :				
81.1	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	361.00	sqm	1684.60	608141.00
82	Chipping of unsound/weak concrete material from slabs, beams, columns etc. with manual Chisel and/ or by standard power driven percussion type or of				

	approved make including tapering of all edges, making square shoulders of cavities including cleaning the exposed concrete surface and reinforcement with wire brushes etc. and disposal of debris for all lead and lifts all complete as per direction of Engineer-In-Charge				
82.1	50 mm average thickness	61.00	sqm	256.35	15637.00
82.2	25 mm average thickness	239.00	sqm	126.75	30293.00
83	Drilling suitable holes in reinforced or plain cement concrete with power driven drill machine to a minimum depth of 100mm upto 200mm in RCC beams, lintels, columns and slabs to introduce steel bars for sunshades/balconies including fixing the steel bars in position using epoxy resin anchor grout of approved make but excluding the cost of reinforcement, all complete as per direction of Engineer-In-Charge.				
83.1	Upto and including 12mm dia.	500.00	each	141.20	70600.00
84	Providing, mixing and applying bonding coat of approved adhesive on chipped portion of RCC as per specifications and direction of Engineer-In-charge complete in all respect.				
84.1	Epoxy bonding adhesive having coverage 2.20 sqm/kg of approved make	300.00	sqm	285.20	85560.00
85	Providing, mixing and applying SBR polymer (of approved make) modified Cement mortar in proportion of 1:4 (1 cement: 4 graded coarse sand with polymer minimum 2% by wt. of cement used) as per specifications and directions of Engineer-in-charge.				
85.1	25 mm average thickness in 3 layers.	139.00	sqm	587.35	81642.00
85.2	50 mm average thickness in 3 layers.	11.52	sqm	1174.70	13533.00
86	Providing, erecting, maintaining and removing temporary protective screens made out of specified fabric with all necessary fixing arrangement to ensure that it remains in position for the work duration as required by the Engineer-in-charge.				
86.1	Wooven PVC cloth	816.00	sqm	54.25	44268.00
87	Shotcreting R.C.C. columns, beams and slabs etc. in layers with approved design mix concrete having the specified minimum characteristic compressive strength [with ordinary portland cement, coarse sand and graded stone aggregate of 10 mm maximum size in proportion as per design criteria] including the cost of centering				

	and shuttering at edges and corners etc. as directed by Engineer- in-Charge				
	Note: Rates shall include the providing necessary ground wires etc. The levelling gauges, if used, shall be paid for separately. Payment under this item shall be made only after proper wet curing has been done and surface has been satisfactorily evaluated by sounding/tapping with a blunt metal instrument.				
87.1	50mm thick in Grade M 25 with cement content not less than 330 kg per cum	333.00	sqm	1151.05	383300.00
88	Providing and fixing hard drawn steel wire fabric of size 75 x25 mm mesh or other suitable size wire mesh to be fixed & firmly anchored to the concrete surface by means of "L" shaped mild steel shear key welded with existing reinforcement including the cost of materials, labour, tool & plants as approved by Engineer-in-charge.	324.00	sqm	902.55	292426.00
89	Providing an fixing factory made single extruded WPC (Wood Polymer Composite) solid wood/ window/ clerestory window frames/ chowkhat comprising of virgin PVC polymer of K value 58- 60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/ wheat husk) and nontoxic additives (maximum toxicity index of 12 for 100gms) fabricated with miter joints after applying PVC solvent cement and screwed with full body threaded star headed SS screws having minimum frame density of 750kg/cum, screw withdrawal strength of 2200N (face) & 1100N (edge), minimum compressive strength of 58N/mm ² and modulus of elasticity 900N/mm ² and resistance of spread of flame of class A category with property of being termite/ borer proof, water /moisture proof and fire retardant and fixed in position with M.S. hold fast/ lugs/ SS dash fasteners of required dia and length complete as per direction of Engineer in Charge, (M.S. hold fast/lugs or SS dash fasteners shall be paid for separately).				
	Note: For WPC (Wood Polymer Composite) solid wood/ window frames minus 5mm tolerance to dimensions i.e. depth and width of profile shall be acceptable. Variation in profile dimensions on plus side shall be acceptable but no extra payment on this account shall be made.				
89.1	Frame size 45 x 70 mm	382.00	mtr	705.85	269635.00

90	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid plain flush door shutter of required size comprising of virgin polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/wheat husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) & 900 N (Edge), minimum compressive strength 50 N/mm ² , modulus of elasticity 850 N/mm ² and resistance to spread of flame of Class A category with property of being termite/borer proof, water/moisture proof and fire retardant and fixing with stainless steel butt hinges of required size with necessary full body threaded star headed counter sunk S.S screws, all as per direction of Engineer-In- Charge. (Note: stainless steel butt hinges and necessary S.S screws shall be paid separately)				
90.1	30 mm thick	46.00	sqm	4346.70	199948.00
90.2	35 mm thick	111.00	sqm	5015.35	556704.00
	Total DSR Items				17865132.00
	Modified Estimated cost after Using Correction factor on DSR 2023 on account of GST @ 0.973(Multiplying Factor)				1,73,82,773.00
		Add Cost Index @ 4.03%			7,00,526.00
		Total (A)			1,80,83,299.00
	Non Schedule Items				
91	Providing and fixing of Angular Stop Cock with wall flange of Jaquar Model No. LYR-CHR-38053 or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-charge.	72.00	each	1237.85	89125.00
92	Providing and fixing of Hand Shower (Health Faucet) with 8mm dia, 1 Meter Long Flexible Tube & Wall Hock with N.R.V. (Rack Flow Preventer) of Jaquar Model No. ALDCHR-577 or equivalent to Grohe/Kohler including making all connections, fixing to wall with suitable brackets etc. all complete as per direction of Engineer-in-charge.	24.00	each	1847.85	44348.00
93	Providing and fixing of Rimless Single Piece WC with PP Soft Close Slim Seat Cover, Hinges, Dual Flush Cistern fitting with Back Inlet, Fixing Accessories, Size: 370x665x750 mm shape, size and pattern of Jaquar Model No. CNS WHT-853S220SPPSM or	24.00	each	27621.46	662915.00

	equivalent to Grohe/Kohler including all fittings and fixtures with nuts, bolts and gasket etc. including making connection with the existing P/S trap etc. all complete as per directions of Engineer-in-Charge.				
94	Providing and fixing of Aquamax Exposed Part Kit of Thermostatic Shower Mixer with 2-way diverter (compatible with ALD-681N) of Jaquar Model No.-KUPCHR- 35681NKPM or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-charge.	24.00	each	7854.20	188501.00
95	Providing and Fixing of Soap dispenser with glass bottle of Jaquar Model No.-AKP-CHR-35735P or equivalent to Grohe/Kohler and required size of SS screws etc. all complete as per direction of Engineer-in-charge.	24.00	each	1981.46	47555.00
96	Providing and fixing of 2 Way Bib Cock with wall flange of Jaquar Model No.-KUP CHR -35041PM or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-charge.	24.00	each	3020.95	72503.00
97	Providing and fixing of Toilet Roll Holder with Shelf of standard design of Jaquar Model No. ACN-CHR-1157 or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-Charge.	24.00	each	1947.40	46738.00
98	Providing and fixing of Corner Glass Shelf (with Braker) of Jaquar Model No. ACN-CHR-1173 or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-Charge.	48.00	each	1618.90	77707.00
99	Providing and Fixing of Premium Wall Bracket for Hand Shower 35mm dia. & 100mm long Road Shape of Jaquar Model No.-SHA-555 or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-charge.	24.00	each	598.65	14368.00
100	Providing and Fixing of Hand Shower 105mm Round Shape Multi Flow (Rain & Massage) with Air Effect (ABS Body & Face Plate Chrome Plated) with Rubit Cleaning System of Jaquar Model No.-HSH-1721 or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-charge.	24.00	each	4305.70	103337.00
101	Providing and fixing of Toilet Roll Holder with Shelf of standard design of Jaquar Model No. ACB-CHR-1157 or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-Charge.	24.00	each	1960.90	47062.00
102	Providing & Fixing of Bottle Trap 32mm Size with 300mm & 190mm Long Wall Connection Pipes & Wall Flange of	24.00	each	2096.10	50306.00

	Jaquar Model No.- ALD-769L300x190 or equivalent to Grohe/Kohler for wash basin and sink single piece moulded with effective length of tail pipe from the centre of the waste coupling with 25mm minimum water seal etc. all complete as per Direction of Engineer- in - Charge.				
103	Providing and Fixing of Single Lever Tall Boy with 150mm Extension Body fixed spout without popup waste system with 600mm long braided hoses of Jaquar Model No.-ORP-SSF-10005BPM or equivalent to Grohe/Kohler including with wall flange cost of fittings i/c cutting & making etc. all complete as per direction of Engineer-in-charge.	24.00	each	9964.80	239155.00
104	Providing and fixing of Thin Rim Table Top Basin, Shape : Rectangular of size 530x420x140mm of Jaquar Model No.-JDS-WHM-25907N or equivalent to Grohe/Kohler etc. all complete as per direction of Engineer-in-charge.	24.00	each	6644.70	159473.00
				Total=B	1843093.00
				Total=A+B	19926392.00
	CREDIT ITEMS				
105	Deduct amount for taking away dismantled C.I. pipe & fittings from the site of work complete as per direction of Engineer-in-charge. (Material shall be provided free of cost by the Department)	150.00	kg	-40.00	-6000.00
106	Deduct amount for taking away dismantled wooden Shutter with Chaukhat with fittings from the site of work complete as per direction of Engineer-in-charge. (Material shall be provided free of cost by the Department)	6.00	each	-300.00	-1800.00
				Total (C)	-7800.00
				Total=A+B+C	19918592.00

Terms and conditions

In compliance to SE(C&M) O/o DG CPWD circular no. DG/SE/CM/MISC/77 dated 04-05-2018, DG/CON/Maintenance/2023/10 dated 09.10.2024 DG/CON/Construction//2023/12 dated 09.10.2024 whichever is applicable, the authenticated copies of itemized bills of the materials which has to be entered in MAS registers viz steel, cement, bitumen, paint, water proof materials or any such be submitted along with each & every Running/Final Bills.

**Executive Engineer
CD-4, CPWD,
Pusa, New Delhi**

FINANCIAL BID
Central Public Works Department

NIT No. 10/SE/DC-7/CD-4/2026-27

Name of work: Major Structural repair and renovation work Sindhu Annexe Building adjacent to Sindhu Guest House at IARI, Pusa, New Delhi.

SCHEDULE OF QUANTITY					
Name Of Contractor					
S.No.	Name of Component	Estimated Cost	Percentage above or below the Estimated cost	% in Figures	TOTAL Cost
1.	Civil Work = (A+B)	Rs. 1,99,26,392/-			
	(c)	Rs. -7800/-	The rates should be at par or above		
	Grand Total	Rs. 1,99,18,592/-			

Contractor