

## **PART-A for Civil & Electrical Component**

**Name of work** : **C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.**

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AE (P) (C)

AE (P) (E)

EE (C)-I

NIT amounting to Rs. 7,54,43,427/- (Rupees seven crore fifty four lacs forty three thousand four hundred twenty seven) only

Approved

CE (Patna)

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

The Executive Engineer **Patna-1**, Central Public Works Department, **Patna** (Telephone no. 0612-2545024 & Fax no. 0612-2545158) on behalf of the President of India invites online **percentage rate bids** from approved and eligible contractors of CPWD under composite category of approved 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 (in months)	Last date of online submission of bid, copy of receipt of deposition of original EMD and other documents as specified in the bid document	Date & time of opening of bid
1	2	3	4	5	6	7	8
1.	<b>08/NIT/CE(PATNA) /CPWD/2023-2024</b>	C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.	Part-A&B for Civil Work = <b>Rs. 6,72,85,692/-</b> Part-C for Electrical Work = <b>Rs81,57,735/-</b> Total = = <b>Rs. 7,54,43,427/-</b>	Total = <b>Rs. 15,08,869/-</b>	<b>12 months</b>	<b>10.10.2023 03:00 P.M</b>	<b>10.10.2023 03:30 P.M</b>

- The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he consider himself eligible and he is in possession of all the documents required.
- Information and Instructions for bidders posted on website shall form part of bid document.
- The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website **<https://etender.cpwd.gov.in> or [www.cpwd.gov.in](http://www.cpwd.gov.in)** free of cost.
- But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand darft or Bankers Cheque or Fixed Deposit Receipts or/and Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank towards EMD in favour of Executive Engineer as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/ AE), CPWD and other documents as specified.

**\* Blanks to be filled by EE Patna-I.**

OFFICE OF CE (PATNA), CPWD, PATNA (BIHAR)

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



**AE (C)**

Contact for Tender Filling and Documentation  
Mob No.: +91 - 9630030343  
Helpline: - 18008892553  
Email ID:- proposal@tendersttime.com  
Website:- www.tendersttime.com

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

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

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

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

- I. Insurance Surety Bond, Demand Draft/Account Payee Banker's Cheque/FDR/ Bank Guarantee of any commercial Bank against EMD.
- II. Enlistment Order of the Contractor.
- III. EMD Deposition Receipt.
- ~~IV. Affidavit as per clause 1.2.3 of CPWD - 6 (if required from non CPWD and CPWD class-II contractors).~~
- ~~V. Two letters from CPWD class-I contractors as specified under clause 1.2.3 of CPWD - 6 (if applicable).~~
- VI. GST registration certificate, if already obtained by the bidder.

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

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

- VII. Undertaking on structural stability and soundness as per prescribed format Form 'F'.

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### CPWD-6 FOR E-TENDERING

1. ~~Item rate/Percentage rate~~ bids are invited on behalf of President of India from approved and eligible contractors of CPWD under composite category ~~and those of appropriate list of M.E.S., BSNL, Railway and Bihar State P.W.D. (B&R) or State Govt.'s Department~~ ~~(strike out as the case may be)~~ dealing with building and roads, if there is no State PWD (B&R) for the work of

**"C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar."**

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

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

- 1.1 The work is estimated to cost **Rs. 7,54,43,427/-**. This estimate, however, is given merely as a rough guide.

- 1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matters relating to the invitation of bids. For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

- ~~1.2 Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below:-~~

~~Criteria of eligibility for submission of bid documents~~

- ~~1.2.1 Conditions for Non CPWD registered contractors only, if bids are also open to non-CPWD contractors.~~

~~For works estimated cost upto tendering limit of class -1 Buildings & Roads (erstwhile Composite/Building/Infrastructure) category Contractor (However, for Horticulture category, it may be modified as per bidding limit of CPWD class I contractors of Horticulture category).~~

- ~~(i) Three similar works each of value not less than Rs. .... or two similar work each of value not less than Rs. .... or one similar work of value not less than Rs. .... (all figures rounded to nearest convenient figure) during the last 7 years ending last day of the months previous to the one in which tenders are invited.~~

- ~~(ii) For EPC tender under Mode I/II only (Applicable for CPWD enlisted contractors of appropriate class also).~~

~~One completed work costing not less than Rs. .... executed with the structural system technology as proposed by bidder in the letter of transmittal during the last 7 years ending last day of the month previous to the one in which tenders are invited. This work can be part of eligible work at 1.2.1 (i) above or as a separate work.~~

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**Note :-**

~~For works costing above tendering limit of class –II Buildings & Roads (erstwhile Composite/Building/Infrastructure) category contractors but upto tendering limit of Clause I Building & Roads (erstwhile Composite/Building/Infrastructure) category Contractor (However, for Horticulture category, it may be modified as per bidding limit of CPWD class II and CPWD Class I contractors respectively of Horticulture Category) when bids are open to non-CPWD contractors also, then class II contractors of CPWD registered shall also be eligible if they satisfy the eligibility criteria specified in 1.2.1 above.~~

**1.2.2 Criteria of eligibility for CPWD as well as non-CPWD contractors.**

~~For works estimated to cost above the tendering limit of class –1 (Super) Buildings & Roads (erstwhile Composite/Building/Infrastructure) category Contractor (However for Horticulture category, it may be modified as per bidding limit of CPWD class I contractors of Horticulture Category).~~

~~(i) Three similar works each of value not less than Rs. .... or two similar work each of value not less than Rs.....or one similar work of value not less than Rs.....(all figures rounded to nearest convenient figure) during the last 7 years ending last day of the months previous to the one in which tenders are invited.~~

~~(ii) For EPC tender under Mode I/II only (Applicable for CPWD enlisted contractors of appropriate class also).~~

~~One completed work costing not less than Rs. .... executed with the structural system technology as proposed by bidder in the letter of transmittal during the last 7 years ending last day of the month previous to the one in which tenders are invited. This work can be part of eligible work at 1.2.2 (i) above or as a separate work.~~

~~The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the last date of submission of bid. This is applicable for 1.2.1 as well as 1.2.2 (Para 1.2.1 (i) and Para 1.2.2 (i) are not applicable for CPWD enlisted contractors of appropriate class. Para 1.2.1 (ii) and Para 1.2.2 (ii) are also applicable for CPWD enlisted contractors of appropriate class}~~

**To become eligible for issue of bid, the bidders shall have to furnish an affidavit as under:-**

~~I/We undertake and confirm that eligible similar works(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 bidding in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer in Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee. (Scanned copy to be uploaded at the time of submission of bid)~~



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**1.2.3** ~~When bids are invited from non CPWD contractors and CPWD class II contractors as per provisions of clause 1.2.1 above, it will be mandatory for non CPWD contractors and CPWD class II contractors to upload the work experience certificate(s) and the affidavit as per the provisions of clause 1.2.2.~~

~~But for such bids, Class I contractors of CPWD are eligible to submit the bids without submission of work experience certificate and affidavit. Therefore, CPWD class I contractors shall upload two separate letters for experience certificate and affidavit that these documents are not required to be submitted by them. Uploading of these two letters is mandatory otherwise system will not clear mandatory fields.~~

2. Agreement shall be drawn with the successful bidders on prescribed Form No. **CPWD-7/8** (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website **www.cpwd.gov.in**. Bidders shall quote their rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **12 months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. (i) The site for the work is available.  

~~OR~~

~~The site for the work shall be made available in parts as specified below :-~~

.....

(ii) ~~The architectural and structural drawing for the work is available or~~
5. The architectural and structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of work. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website <https://etender.cpwd.gov.in> or [www.cpwd.gov.in](http://www.cpwd.gov.in) free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. ~~When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.~~

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9. Earnest Money 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) form any of the Commercial Banks (drawn in favour of **Executive Engineer, Patna Central Division, CPWD, Patna**) 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.

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

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

Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in e- tender notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority.

Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at 03.30 PM on **10.10.2023**.

10. The bid submitted shall become invalid and e-Tender processing fee (if applicable) shall not be refunded if:
- (i) The bidder is found ineligible.
  - (ii) The bidder does not upload scanned copies of all the documents stipulated in the bid document.
  - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.
  - (iv) If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

**\* Blanks to be filled by EE Patna-I**

OFFICE OF CE (PATNA), CPWD, PATNA (BIHAR)

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



**AE (C)**

Contact for Tender Filling and Documentation  
Mob No.: +91 - 9630030343  
Helpline: - 18008892553  
Email ID:- proposal@tendersttime.com  
Website:- www.tendersttime.com

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11. The contractor whose bid is accepted will be required to furnish performance guarantee at specified percentage of the tendered amount as mentioned in schedule E and within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. If applicable and also ensure the compliance of aforesaid provisions by the subcontractors, if any engaged by the contractor for the said work within the period specified in Schedule F
12. **The description of the work is as follows:**  
**C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.**  
Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.

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15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of 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.
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. The bids for the work shall remain open for acceptance for a period of 30 (thirty) days from the date of opening of bids in case of single bid system and ~~75 (seventy five) days from the date of opening of technical bids in case bids are invited in 2 or 3 bid system. Further~~
  - (i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
  - (ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
  - (iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidder/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
  - a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
  - b) Standard C.P.W.D. Form 7/8 or other Standard C.P.W.D. Form as applicable.

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**20. For Composite Bids**

- 20.1.1 The Executive Engineer in charge of the major component will call bids for the composite work. The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.
- 20.1.2 The bid document will include following three components:  
**Part A:-** CPWD-6, CPWD-7/8 including schedule A to F for major component of the work, Standard General Conditions of Contract for CPWD 2020 for Construction work as amended/modified up to last date of submission of bid.  
**Part B :-** General/specific conditions, specifications and schedule of quantities applicable to major component of the work.  
**Part C :-** Schedule A to F for minor component of the work (competent authority under clause 2 and clause 5 shall be same authority as mentioned in schedule A to F for major components), General/specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.
- 20.1.3 The bidders must associate himself, with agencies as per NIT conditions.
- 20.1.4 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.
- 20.1.5 After acceptance of the bid by competent authority, the EE in charge of major component of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE in charge of major component and has also to sign two or more copies of agreement depending upon number of EE's/DDH in charge of minor components. One such signed set of agreement shall be handed over to EE/DDH in charge of minor component(s). EE of major component will operate Part A and Part B of the agreement. EE/DDH in charge of minor component(s) shall operate Part C along with Part A of the agreement.
- 20.1.6 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.
- 20.1.7 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.
- 20.1.8 The main contractor has to associate agencies for specialized component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-charge of relevant component(s).within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-charge of relevant component(s).
- 20.1.9 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge of relevant specialized component(s).

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

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- 20.1.10 The main contractor has to enter into MoU with agency(s) associated by him . Copy of such MoU shall be submitted to EE/ DDH in charge of each relevant component as well as to EE in charge of major component. In case of change of associate contractor, the main agency(s) has to enter into MoU/agreement with the new contractor associated by him.
- 20.1.11 Running payment for the major component shall be made by EE of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer- in-charge of the discipline of minor component directly to the main contractor. The CMB shall be maintained independently by Engineer-in-Charge of major and minor components.
- 20.1.12A The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-charge of major component after record of completion certificate of all other components.
- 20.1.12B Final bill of whole work shall be finalized and paid by the EE of major component.  
Engineer(s) in charge of minor component(s) will prepare and pass the final bill for their component of work and pass on the same to the EE of major component for including in the final bill for composite contract.

- 21.** ~~Integrity Pact: The contractor shall download the Integrity Pact, which is a part of tender documents, affix his signature in the presence of a witness, and uploaded the same while submitting online bids for all works of estimated cost put to tender equal or more than the threshold value given in Schedule F. In the event of his failure to sign and upload the Integrity Pact along with other bid documents, his bid shall be rejected.~~
- 22.** The intending bidders are required to update their profile in CPWD e-tender portal and to upload their bid well in advance of last date of submission of tender. Any issue related to updating profile/uploading tender can be resolved through the concerned Executive Engineer/Assistant Engineer (Phone No. **0612-2545024**, e-mail id **pateepcd.cpwd@gov.in**) or ERP help line no.18001803286 or e-mail Id. cpwd.support@techmahindra.com. The e-tendering bidders are also advised not be wait to raise any issues till the last date of submission of bid in their own interest.

**\* Blanks to be filled by EE Patna-I.**

**On non-judicial stamp paper of minimum Rs.100**

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

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

- Whereas the Executive Engineer .....(name of division) ....., CPWD on behalf of the President of India (hereinafter called "The Government") has invited bids under ..... (NIT number) ..... dated ..... for ..... (name of work) ..... The Government has further agreed to accept irrevocable Bank Guarantee for Rs. .... (Rupees ..... only) valid upto ..... (date)\*..... as **Earnest Money Deposit** from ..... (name and address of contractor) ..... (hereinafter called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

**OR\*\***

Whereas the Executive Engineer ..... (name of division) ..... CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number ..... with ..... (name and address of 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/Security Deposit/Mobilization Advance** from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

- 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.
- We, ..... (indicate the name of the Bank) ....., do here by 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).
- 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 claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date. ....

Witnesses:

- |                    |                      |
|--------------------|----------------------|
| 1. Signature ..... | Authorized signatory |
| Name and address   | Name                 |
|                    | Designation          |
| 2. Signature ..... | Staff code no.       |
| Name and address   | Bank seal            |

\*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 made ~~either for~~ earnest money or for performance security/security deposit/mobilization advance, as the case may be.



## Form 'F'

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

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

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

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

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

Signature of  
notary with seal

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

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

**CPWD-7**

**CPWD**

**GOVERNMENT OF INDIA  
CENTRAL PUBLIC WORKS DEPARTMENT**

**Percentage Rate Tender/~~Item Rate Tender~~ & Contract for Works**

(A) Tender for the work of:-

**“C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.”**

- (i) To be uploaded by **15:00** hours on **10.10.2023** to/upload at **https://etender.cpwd.gov.in** or **www.cpwd.gov.in**.
- (ii) To be opened in presence of tenderers who may be present at **15:30** hours on **10.10.2023** in the office of **Executive Engineer Patna-1, CPWD, Patna**.

**TENDER**

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

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

I/We agree to keep the tender open for 30 days from the due date of its opening in case of single bid system ~~75 days from the date of opening of technical bid in case tenders are invited on 2 /3 bid/ system for specialised work~~ and not to make any modification in its terms and conditions.

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

**\* Blanks to be filled by EE Patna-I**

**CPWD-7**

**CPWD**

A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a Commercial Bank is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/ We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

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

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

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

**Dated:** .....\*\* .....

**Signature of Contractor \*\***

**Witness: \*\***

**Address: \*\***

**Postal Address \*\***

**Occupation: \*\***

**\*\* To be filled by Contractor**

**CPWD-7**

**CPWD**

### ACCEPTANCE

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

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** .....\*

**\* Blanks to be filled by EE Patna-I**

**PROFORMA OF SCHEDULES**

**CPWD**

**PROFORMA OF SCHEDULES**

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

**SCHEDULE 'A'**

Schedule of quantities (as per PWD-3) : Page no. **54** to **77**

**SCHEDULE 'D'**

Extra schedule for specific requirements/ document : **NIL**  
for the work, if any

**SCHEDULE 'E'**

Reference to General Conditions of Contract : **General Condition of Contract 2020 for Construction work with amendments upto the last date of submission of bids.**

Name of Work : **"C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar."**

Estimated cost of work

(a) Civil Component : **Rs. 6,72,85,692/-**  
(b) Electrical Component : **Rs. 81,57,735/-**  
Total : **Rs. 7,54,43,427/-**

(i) Earnest Money : **Rs. 15,08,869/- (to be returned after receiving performance guarantee)**  
(ii) Performance Guarantee : **5% of tendered value**  
(iii) Security Deposit : **2.5% of tendered value**

**SCHEDULE 'F'**

**GENERAL RULES & DIRECTIONS**

Officer inviting bid : **Executive Engineer Patna-1, CPWD, Patna**

~~Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3. See below~~

## PROFORMA OF SCHEDULES

CPWD

### Definitions

- 2(v)** Engineer-in-Charge : **Executive Engineer Patna-1, CPWD, Patna**
- 2(viii)** Accepting Authority : **Chief Engineer (Patna), CPWD, Patna**
- 2(x)** Percentage on cost of materials and labour to cover all overheads and profits: : **15%**
- 2(xi)** Standard Schedule of Rates : **DSR' 2021 for Civil Items**
- 2(xii)** Department : **CPWD**
- 9(ii)** Standard CPWD Contract Form GCC 2020, CPWD Form 7 as modified & corrected upto : **CPWD Form 7 and GCC 2020 for Construction work modified & Corrected upto the last date of submission of bids.**

### Clause 1

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

### Clause 2

Authority for fixing compensation under clause 2 : **Chief Engineer (Patna), CPWD, Patna**

### Clause 2A

Applicable clause 2/~~Clause 2A~~ : **Yes/~~No~~**



**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 5**

Number of days from the date of issue of letter : **10 days**  
of acceptance or handing over of site whichever is  
later for reckoning date of start Mile stone(s) as  
per table given below:-

S. N o.	Description of Milestone (Physical)	Time allowed in months (from date of start)	Amount to be with-held in case of non achievement of mile stone
1.	(a) Setting up field laboratory, cement store & reinforcement stacking platform, setting up concrete batch mix plant/RMC, approval of design mix concrete. (b) Submission of Credentials Documents in complete shape of all Associated Electrical & specialized Agencies for all components of E&M services i/c resubmission of all additional credential documents for any shortcomings/ discrepancies.	<b>2 Month</b>	@ 1.00% (one percent) of the tender value will be withheld for each milestone subjected to maximum 5% of tendered amount.
2.	Completion of foundation work upto plinth level in 90% of length of building work, completion of 1 <sup>st</sup> floor RCC work and Brick Work and electrical conduiting work.	<b>6 Months</b>	
3.	(a) Completion of plaster and flooring upto 90% of area Brick work and RCC of Building work, Plastering of Building work. (b) Completion of all E&M conduiting work.	<b>8 Months</b>	
4.	(a) Completion of plastering work, finishing work doors and windows, 90% work of sanitary water supply and drainage. (b) Works under electrical component complete and Installation of EI fixtures & fittings and all other equipment included in the scope of work.	<b>10 Months</b>	
5.	Completion of all remaining Civil and E&M works etc. in all respect and handing over.	<b>12 Month</b>	

Time allowed for execution of work

**12 months**

**PROFORMA OF SCHEDULES**

**CPWD**

**Authority to decide:**

- (i) Extension of time : **Executive Engineer Patna-1, CPWD, Patna**
- (ii) Rescheduling of mile stones : **Chief Engineer (Patna), CPWD, Patna**
- (iii) Shifting of date of start in case of delay in handing over of site : **Chief Engineer (Patna), CPWD, Patna**

**PROFORMA OF SCHEDULES Clause 5 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	--	<b>Available</b>
Part B	Portions with encumbrances	--	<b>N. A.</b>
Part C	Portions dependent on work of other agencies	--	<b>N. A.</b>

**Clause 6**

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

Mode of Measurement :

**CMB/EMB**

**Clause 7**

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

**Rs.56.00 lacs**

**Clause 7A**

Whether clause 7A shall be applicable

:

**Yes**

**Clause 8A**

Authority to decide compensation on account if :  
contractor fails to submit completion plans

**Chief Engineer (Patna),  
CPWD, Patna**

**Clause 10A**

List of testing equipment to be provided : **List attached as Appendix-I**  
by the contractor at site lab

**Clause 10B(ii)**

Whether Clause 10 B (ii) shall be applicable

**~~Yes~~/No**

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 10C (Applicable in only those contracts where clause 10CC is not applicable)**

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

**Clause 10CC** ----- **Applicable/ Not Applicable**

**A. For construction period**

S.No.	Relevant component of Material /Labour for price escalation	Percentage of total value of work
1.	Cement component	15%
2.	Labour component	25%
3.	Civil component of other Construction Materials	30%
4.	E&M (Electrical and Mechanical) component of Construction Materials	10%
5.	POL (Diesel) component	.....%
6.	Reinforcement steel bars/TMT bars/structural steels (including strands and cables) component	20%
7.	Bitumen component	.....%
	Total	100%

**B. For maintenance period**

S.No.	Relevant component of Material /Labour for price escalation	Percentage of total value of work
1.	Labour component	--
2.	Civil component of other Construction Materials	--
3.	E&M (Electrical and Mechanical) component of Construction Materials	--
4.	Bitumen component (For Road work component)	--
	Total	--

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 11**

Specifications to be followed for **CPWD Specifications 2019 volume – I & II with corrections of slips upto the last date of submission of bid.**

**Clause 12**

	Authority to decide deviation upto 1.5 times of tendered amount	<b>Chief Engineer (Patna), CPWD, Patna</b>
12.2. & 12.3	Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work	<b>100%</b>
12.5	(i) Deviation limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)	<b>100%</b>
	(ii) Deviation limit for items mentioned in earth work subhead of DSR and related items	<b>100%</b>

**Clause 16**

Competent Authority for deciding reduced rates:- **Chief Engineer (Patna), CPWD, Patna**

**Clause 18**

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

**List as per Annexure-II**

<b>Clause 19 C</b>	<b>Executive Engineer Patna-1, CPWD, Patna authority to decide penalty for each default.</b>
<b>Clause 19D</b>	<b>Executive Engineer Patna-1, CPWD, Patna authority to decide penalty for each default.</b>
<b>Clause 19 G</b>	<b>Executive Engineer Patna-1, CPWD, Patna authority to decide penalty for each default.</b>
<b>Clause 19K</b>	<b>Executive Engineer Patna-1, CPWD, Patna authority to decide penalty for each default.</b>

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 25**

(i)	Conciliator	:	<b>Shall be decided by ADG (Patna).</b>
(ii)	Arbitrator Appointing Authority	:	
(iii)	Place of Arbitration	:	

**Clause 32**

**Requirement of Technical Representative(s) and recovery Rates are as below**

S. No.	Minimum Qualification of Technical Representative	DISCIPLINE	Designation (Principal Technical/ Technical Representative)	Minimum Experience (Years)	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figure	Words
1.	Graduate Engineer	Civil	Project Manager	5 (and having experience of one similar nature of work)	1	Rs. <b>25,000/-</b>	twenty five thousand only <b>p.m. per person</b>
2.	Graduate Engineer or Diploma Engineer	Civil Electrical	Project planning / quality/ billing engineer	2 or 5 respectively	1 + 1	Rs. <b>15,000/-</b>	fifteen thousand only <b>p.m. per person</b>

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.

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 38**

- (i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates printed by C.P.W.D. : **Delhi Schedule of Rates 2021 for Civil with amendments upto date of submission of bid**
- (ii) Variations permissible on theoretical quantities:
- (a) Cement
- For works with estimated cost put to tender not more than Rs.25 lakh. : **3% plus/minus.**
- For work with estimated cost put to tender more than Rs.25 lakh. : **2% plus/minus.**
- (b) Bitumen All Works : **2.5% plus only & nil on minus side**
- (c) Steel Reinforcement and structural steel sections for each diameter, section and category : **2% plus/minus**
- (d) All other materials : **Nil**



**Appendix-I**

**ESTABLISHING SITE LABORATORY AND TESTING OF MATERIALS**

Equipments for conducting necessary tests (as per CPWD Specifications 2019 Volume-I) shall be provided and installed at site in the well-furnished site laboratory by the agency at his own cost. The following laboratory equipment should be in general or as and when required be set up at site laboratory: -

Sl. No.	Equipment	Numbers
1.	100MT compression testing machine, electrical-cum-manually operated)	1
2.	Slump cone, steel plate, tamping rod, steel scale, scoop	1
3.	Vicat Apparatus with Desk pot	1
4.	Weighing scale platform type 100 Kg	1
5.	Graduated glass measuring cylinder of various capacity	As per requirement
6.	Sets of sieves of 450mm internal dia for coarse aggregate [100mm, 80mm, 40mm, 20mm, 12.5mm]	1 sets
7.	Sets of sieves of 200mm internal dia for fine aggregate [4.75mm; 2.36mm; 1.18mm; 600microns; 300 microns & 150 micron, with lid and pan]	1 sets
8.	Cube moulds size 150mmx150mmx150mm	12
9.	Hot air oven temp. Range 50°C to 300°C-sensitivity 1 degree	1
10.	Electronic balance 600gx0.1g., 10kg and 50 kg	1
11.	Digital thermometer up to 150oc	1
12.	Measuring jars 100ml, 20ml, 500ml	2 Nos each size
13.	Gauging trowels 100mm & 20mm with wooden	5
14.	Spatula 100mm & 20mm with long blade wooden handle	5
15.	Vernier calipers 12" & 6" size	1 each
16.	Digital PH meter least count 0.01mm	1 each
17.	Digital Micrometer least count. 0.01mm	1 each
18.	GI tray 600x450x50mm, 450x300x40mm, 300x250x40mm	1 No each
19.	Electric Motor mixer 0.25 cum capacity	1
20.	Screw gauge 0.1mm-10mm, least count 0.05	1
21.	Dial type spring balance preferable with zero correction knob capacity 100 kgs. Reading to ½ kg.	1
22.	Counter scale capacity 1 kg and 10 kg	2
23.	Iron Weight of 5 kg, 2 kg, 1 kg, 500 gm, 20 gm, 100 gm	1 each
24.	Measuring cylinder TPX or Poly propylene capacity 100 ml, 500 ml, 250 ml, 100 ml	3 each
25.	Hammer 1lb& 2lb	1 each
26.	Measuring tape (5 metre)	2
27.	Any other equipment for site tests as outlined in BIS codes and as directed by the Engineer-in-charge.	As per requirement

**REQUIREMENTS OF PLANT AND EQUIPMENT AT SITE**

Sl. No.	Equipment	Numbers
1.		
2.	Excavator cum loader (JCB 3D model or equivalent).	1
3.	DG set of minimum capacity 62.5 KVA.	1
4.	Concrete pump	2
5.	Needle Vibrators of different diameter.	5
6.	Dumper/Tipper	As per requirement
7.	Reinforcement bending machine.	1
8.	Reinforcement cutting machine.	1
9.	Total station.	1
10.	Water tanker (Minimum capacity of 5000 liters)	1
11.	Welding machine 400 Ampere	2
12.	Screener for coarse sand and fine sand	6
13.	Centrifugal mono block water pump minimum capacity 2 HP	2
14.	Road roller / Vibratory roller 8 to 10 tonnes	1
15.	Shuttering with necessary props	1500 sq.mt.
16.	Desktop Computers (All in one)	1
17.	Laptop/IPAD for recording measurements at site	1
18.	Good quality Camera for taking photographs and video recording of major activities for record purpose and for quality assurance	1
19.	Any other machinery required for completion of the work as per decision of Engineer-in-charge.	As per Actual Requirement

- Note: 1. The above list is only indicative and not exhaustive. The Bidder may be required to deploy more T&P as per requirement of work.  
2. All the above plants & equipments are to be deployed as and when required or directed by Engineer-in-Charge.

## **PART-B for Civil Component**

### **BRIEF SCOPE OF WORK**

**Name of Work : C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.**

#### **I) Civil Work:-**

##### **1. FOUNDATIONS:**

- i) The foundation will be open foundation with M25 grade of concrete. Depth of isolated & combined footings will be as specified in the structural drawings.
- ii) Lean Concrete:- C.C. 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size) of 75mm thickness shall be provided below footing and under floor as per approved structural drawings.
- iii) 150mm thick RCC 1:2:4 with nominal reinforcement 8mm dia @200mm CC provided over 150mm sand shall be laid under floor.
- iv) Reinforced Cement Concrete –Column & beam of RCC shall be design mix M25 or mix as specified with TMT bars/reinforcement of Fe 500D grade conforming to IS 1786-2008 as per structural drawings.
- v) Brick work in foundation:
  - a) 250mm thick in cement mortar 1:6 (1 cement: 6 coarse sand) with class designation 7.5 common burnt clay FPS (non-modular) bricks as per architectural drawings.

##### **2. SUPERSTRUCTURE**

- i) Reinforced Cement Concrete in Columns, Slabs, Lintels, Beams and Staircase, Facia, Shelves, Sunken Floors, beams of Sunken Floors:- R.C.C shall be design mix M25 or mix as specified with TMT bars reinforcement of Fe 500D grade conforming to IS 1786-2008 as per approved structural drawings.
- ii) Brick work in walls:
  - a) 250mm thick in cement mortar 1:6 (1 cement: 6 coarse sand) with class designation 7.5 common burnt clay FPS (non-modular) brick in superstructure as per architectural drawings.
  - b) 125mm thick half brick masonry in cement mortar 1:4 (1 cement: 4 coarse sand) with class designation 7.5 common burnt clay FPS (non-modular) as in superstructure per architectural drawings.
  - c) Brick work with non modular fly ash bricks conforming to IS:12894, class designation 7.5 average compressive strength in super structure above plinth level up to floor V level.

##### **3. DOORS, WINDOWS & GLAZING:**

- i) DOORS
  - a) Providing and fixing wire gaged shutter with SS grade 304 wire gaged with Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick teak wood.

- b) 35mm thick ISI flush door shutter decorative both side shall be provided in all rooms as per the Architectural Specification.
- c) 35mm thick teak wood door & window as per drawings.
- d) PVC door frame & shutter shall be provided for bath as per architectural drawing.
- ii) WINDOWS
  - a) Aluminium glazed window as per drawing.
  - b) MS tubular door frames as per Architectural Drawing.
  - c) Steel grill shall be in all windows as per architectural Drawings.
  - d) SS grade 304 railing shall be provided for ramp and M.S. railing with teak wood in store.
- iii) GLAZING
  - a) Glass panes of 4 mm thickness shall be provided in all glazed door and windows .

#### 4. FLOORING & DADO

- i) Ceramic glazed wall tiles shall be provided in W.C & Bath portion up to ceiling height or as per requirement of the site.
- ii) Rectified glazed floor tiles (size 300x300mm) shall be provided in toilets etc. over 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand).
- iii) Vitrified tiles flooring (600x600mm) shall be provided in all rooms.
- iv) 150mm high skirting with digital vitrified tiles shall be provided for matching to the floor finish as per requirement.

#### 5. ROOFING

- i) PVC rain water pipe of dia. 110 mm shall be provided for drainage of rain water.

#### 6. FINISHING

- i) Internal Surface:
  - a) 12mm/ 15mm thick plaster in cement mortar 1:6 (1 cement : 6 coarse sand).
  - b) 6mm thick plaster in cement mortar 1:3 (1 cement : 3 fine sand) in ceiling and RCC surface.
  - c) All internal wall shall be finished with premium acrylic emulsion paint with under coat of cement primer of approved brand.
  - d) All grills and other metal shall be painted with synthetic enamel paint.
- ii) External Surface:
  - a) 12mm/15mm thick plaster with cement mortar 1:6 (1 cement : 6 coarse sand) as required.
  - b) All exterior finishes shall be finished with texture with premium acrylic smooth exterior paint including priming coat of exterior primer.

**7. SANITARY & WATER SUPPLY**

- i) All the sanitary pipes & fittings shall be made of 100mm dia. hubless centrifugal cast (spun) as per IS:15905. All internal pipes inside the building shall be concealed cpvc pipe.
- ii) All concealed floor/nahani traps and sand cast iron shall be encased with cement concrete 1:1.5:3.
- iii) Water supply inlet concealed pipe shall be of CPVC & external water shall be GI pipes of dia. as per the items.
- iv) PVC water storage tank shall be provided over the roof. The internal distribution of water supply in the unit will be as per approved plan.
- v) All exposed cast (spun) iron pipes are to be painted with paint of shade matching with wall.

**8. FIXTURES**

- i) White vitreous china Orrisa Pattern, European W. C. Pan with cistern, wash basins of specified size shall be provided as shown in Architectural Drawings.
- ii) Fittings shall be provided as per drawings.

**9. WATER PROOFING TREATMENT**

- i) Integral cement based water proofing on terrace as per nomenclature of item.

**10. MISCELLANEOUS**

- i) Manhole shall be provided as per nomenclature of item & direction of Engineer-in-charge.
- ii) S. S. railing 304 grade shall be provided as per approved architectural drawing.
- iii) Road work as per nomenclature of item & direction of Engineer-in-charge.

**II) Electrical Work:-**

- i) Electrical installations with FRLS copper conductor in steel conduit and energy efficient light and fan fittings
- ii) Lightning conductor
- iii) Telephone conduits
- iv) Provision of 10 kVA UPS for essential services
- v) CCTV system for internal area of building
- vi) Illuminated signages
- vii) Provision for street lighting
- viii) Fire extinguishers

- IX) Provision for electrical LT feeder pillar, etc.
- x) Provision for 2 Nos. borewell pumps i/c panel and accessocries (1 No. standby).
- xi) Provision for building security lighting above the building parapet.
- xii) SITC of audio-visual/ smart class room system in 1 No. class room only
- xiii) SITC of IP Based EPABX system.

4. Work shall be executed according to General Condition of Contract for Central P.W.D. works available separately at printer's outlets. The bidder may obtain the address of the outlet from the Executive Engineer.

**The above is merely indicative and not exhaustive. The work shall be carried out as per Architectural & Structural Drawings issued.**



## GENERAL CONDITIONS, PARTICULAR SPECIFICATIONS & SPECIAL CONDITIONS FOR CIVIL WORKS

### [A] GENERAL CONDITIONS

1. Except for the items, for which particular specifications are given or where it is specifically mentioned otherwise in the description of the items, the work shall generally be carried out in accordance with the "CPWD Specifications 2019 Vol-I & II with upto date corrections slips for Civil work, CPWD specification 2013 Part-I(Internal) Part-II 2013 (External) for electrical works, CPWD General Specification for electrical work Part-VI fire Alarm System – 2018, specification for horticulture works with upto date correction slips (hereinafter to be referred to as CPWD specifications). Wherever CPWD Specifications are silent, the latest IS Codes/Specifications, National Building Code 2016, MoRTH specification or any other specification shall be followed.
2. The order of precedence in case of any confusion/dispute will be as follows :
  - i) Description of nomenclature of items in bidding documents
  - ii) Particular specifications and special conditions for civil, electrical and horticulture works
  - iii) Architectural/structural drawings
  - iv) CPWD Specifications with upto date correction slips for civil, electrical and horticulture works as applicable
  - v) Indian Standard Specifications of B.I.S.
  - vi) National Building codes 2016.
  - vii) Manufacturers specifications.
  - viii) Sound engineering practices.

A reference made to any Indian Standard Specifications in these documents, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards upto last date of receipt of tenders. The Contractor shall keep at his own cost all such publications of relevant Indian Standard applicable to the work at site.

3. The agency shall construct suitable site office, laboratory & display room for samples to be used at work.

### [B] PARTICULAR SPECIFICATIONS

#### 1.0 GENERAL

- 1.1 The work shall be executed and measured as per metric dimensions given in the Schedule of quantities, drawings etc. (F.P.S. units wherever indicated are for guidance only).
- 1.2 The following modifications to the above specifications and some additional specifications shall however apply:
  - i) All stone aggregates shall be of hard stone variety to be obtained from approved quarries at Domchanch/Koderma/Pakur
  - ii) Sand to be used for cement concrete work, mortar for masonry and plaster work shall be of standard quality. Sand shall be obtained from approved quarry at Nadariganj/Kharal More, Nawada and screened as required. The same shall consist of hard siliceous material. It shall be clean sand.

iii) Common burnt clay FPS (non-modular) brick of 7.5-class designation shall be used in size 250x125x75mm. Brick shall be obtained from approved kiln as approved by Engineer-in-charge.

2.0 Wherever any reference to any Indian Standard Specification occurs in the documents relating to this contract the same shall be inclusive of all amendments issued thereto or revisions thereof, if any, up to the date or receipt of tenders on ...**10.10.2023**.

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

#### 4.0 **R.C.C. Work (Mix Design)**

4.1 For concrete work laboratory tests with PPC cement will be carried out by the contractor through approved laboratories/institutions approved by the Engineer-in-charge. For this purpose the various ingredients shall be sent to the lab/test houses or Institutions and the samples of such ingredients sent shall be preserved at site.

The trial mix shall be prepared with approved aggregates, cement and water. The concrete batching plant to be employed in the work shall be used for preparing the trial mix to simulate actual field conditions.

Design mix shall be prepared without adding any admixture and minimum cement content of design mix as specified in the item is based on without adding any admixture. Admixture may be added to achieve desired workability for which nothing extra shall be paid to the contractor.

#### 5.0 **FLOORING**

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

#### 6.0 **WOOD WORK**

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

6.1 Factory made shutters, as specified shall be obtained from factories to be approved by the Engineer-in-charge and shall conform to IS: 2202 (Part-I) 1991. The contractor shall inform well in advance to the Engineer-in-charge the names and address of the factory where from the contractor intends to get the shutters manufactured. The contractor will place order for manufacture of shutters only after written approval of the Engineer-in-charge in this regard is given. The contractor is bound to abide by the decision of the Engineer-in-charge and recommend a name of another factory from the approved list in case the factory already proposed by the contractor is not found competent to manufacture quality shutters. Shutters will, however, be accepted only if this meets the specified tests.

**\* Blank to be filled by EE Patna-1**

The contractor will also arrange stage-wise inspection of the shutters at factory of the Engineer-in-charge or his authorized representative. Contractor will have no claim if the shutters brought at site are rejected by Engineer-in-charge in part or full lot due to bad workmanship/quality. Such shutters will not be measured and paid and the contractor shall remove the same from the site of work within 7 days after the written instructions in this regard are issued by Engineer-in-charge or his authorized representative.

## **7.0 STEEL WORK**

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

## **8.0 INTERNAL WATER SUPPLY AND SANITARY INSTALLATIONS**

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

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

## **9.0 VARIATION IN CONSUMPTION OF MATERIALS**

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

## **10.0 CONDITIONS**

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

**10.2** The contractor shall take instructions from the Engineer-in-charge for stacking of materials in any place. No excavated earth or building materials shall be stacked on areas where other buildings, roads, services of compound wall are to be constructed.

**10.3** If as per Municipal rules the huts for labour are not to be erected at the site of work by the contractors, the contractors are required to provide such accommodation as is acceptable to local bodies and nothing extra shall be paid on this account.

**10.4** Grey cement bags shall be stacked/stored in separate godown to be constructed by contractor at his own cost as per sketch (which is only indicative and actual size will depend on the site requirements) at page 23 of CPWD specification 2014 Vol.I with weather leak proof roofs and walls. Each godown shall be provided with single door with two locks. The keys of one lock shall remain with CPWD Engineer-in-charge of work and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is removed from the godown according to the daily requirement with the knowledge of both the parties and proper account maintained in standard proforma.

- 10.5 The contractor is responsible for the safe custody of the materials issued to him even if the materials are under double lock system.
- 10.6 The contractor shall construct suitable godowns, yard at the site of work for storing all other materials so as to be safe against damage by sun, rain, damages, fire, theft etc. at his own cost and also employ necessary watch and ward establishment for the purpose at his cost.
- 10.7 The standard sectional weights referred to as standard tables in Para 5.3.4 in specifications for works, 2019 Vol.I vide page 135 of Table-5.4 to be considered for conversion of length of various size of M.S. bars/cold twisted bars and Thermo Mechanically Treated Bars into weight are as under:[Note: These are as per clause 6.2 of IS:1786].

**TABLE**

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

- 10.8 All materials obtained from contractor shall be got checked by the Junior Engineer-in-charge of the works on receipt of the same at site before use.
- 10.9 Royalty at the prevalent rates shall have to be paid by the contractor on all the boulders, metals, shingles, sand and bajri etc. collected by him for the execution of the work, direct to the Revenue authority or authorized agent of the State Government concerned or Central Government.

### **11.0 TESTING OF MATERIAL**

- 11.1 Grey cement & Thermo-mechanically Treated Bar shall be arranged by the contractor.
- 11.2 The contractor shall procure all the materials in advance so that there is sufficient time for testing and approving of the material and clearance of the same before use in work.

### **12.0 INTEGRAL WATER PROOFING TREATMENT**

- 12.1 The contractor must associate himself with the specialized firm to be approved by the Engineer-in-Charge in writing, for integral cement based water proofing treatment for sunken floors and on roofs. 5 years Guarantee Bond in prescribed proforma attached vide page **45 to 46** must be given by the specialized firm on stamp paper which shall be countersigned by the contractor, in token of his overall responsibility. In addition 10%(ten percent) of the cost of these items would be retained as Guarantee Bond to watch the performance of the work done. If any defect is noticed during the Guarantee period for ten years to be reckoned from the date after the Construction period prescribed in the contract expires it should be rectified by the contractor within seven days and if not attended to, the same will be got done by another agency at the risk and cost of the contractor. However, this security deposit can be released in full, if bank guarantee of equivalent amount for 5(five) years is produced and deposited with the department.

**ICJ SPECIAL CONDITIONS**

01. The contractor shall follow all the provisions of Construction & Demolition Waste Management Rules 2016 issued by Ministry of Environment & Forest notification dtd. 29.03.2016.
02. The contractor shall not store/dump construction material or debris on metalled road.
03. 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.
04. The contractor shall take appropriate protection measures like raising wind breaker 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 materials dust fly outside the plot area.
05. 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.
06. 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 enroute their destination, the dust, sand or any other particles are not released in air/contaminate air.
07. The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction materials and construction debris to prevent inhalation of dust particles.
08. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relatable to duct emission.
09. The contractor shall ensure that C&D waste is transported to the C&D waste site only and due record shall be maintained by the contractor.
10. The contractor shall compulsory use of wet jet in grinding and stone cutting.
11. The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.
12. The contractor shall carry out on-Road-Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
13. The contractor shall ensure that all DG sets comply emission norms notified by MoEF.
14. 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 bums shall be used to ensure speed reduction. In case where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.
15. 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.



16. The paving of the path for plying of vehicles carrying construction material is more permanent solution to dust control and suitable for longer duration projects. The NIT approving authority shall carry out cost benefit ratio analysis of the same.
17. Unless otherwise specified in the Schedule of quantities the percentage rates below/above or at par tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing extra shall be payable to him on this account. Payment for centering, shuttering, however, if required to be done for heights greater than 3.5m shall be admissible at rates arrived at in accordance with clause 12 of the agreement if not already specified.
18. The contractor shall make his own arrangements for water and for obtaining electric connections if required and make necessary payments directly to the department concerned.
19. Other agencies doing work related with this project will also simultaneously execute the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, openings etc. for laying, burying in the work pipes, cables, conduits, clamps, boxes and hooks for fan clamps, etc. as may be required for other agencies conduits for Electrical wiring/cables will be laid in a way that they leave enough space for concreting and do not adversely affect the structural members. Nothing extra over the agreement rates shall be paid for the same.
20. Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restrictions/instructions and nothing extra shall be payable on this account.
21. (a) The building components will be carried out in the manner complying in all respects with the requirements of relevant byelaws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-charge and nothing extra will be paid on this account.  
(b) The contractor shall comply with proper and legal orders and directions of the Local or Public authority or Municipality and abide by their rules and regulations and pay all fees and charges, which he may be liable.
22. The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.
23. Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable (or) extra cement considered in consumption on this account.
24. Testing of materials:  
**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. All Govt. Engineering College, NIT/IIT College Laboratory or any other lab as approved by ADG/SDG be opted for testing of materials.**

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

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

**25.1 Conditions for Cement (Grey Cement).**

- i) The contractor shall procure Portland Pozzolana Cement (PPC) [conforming to IS:1489 (Part-I)], as required in the work, from reputed manufacturers of grey cement such as ACC, Ultra tech, Vikram, Shree Cement, Ambuja, Jaypee Cement, Century Cement & J. K. Cement or from any other reputed cement Manufacturer having a production capacity not less than one million tonnes per annum as approved by ADG for that sub region. Supply of cement shall be taken in 50 Kg. bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-charge and got tested in accordance with provisions of relevant BIS codes. In case test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer-in-charge to do so.
- ii) Use of PPC (Portland Pozzolana Cement) shall be used in RCC structures in accordance with the circular issued by the Directorate General of Works vide No.CDO/SE(RR)/Fly Ash (Main)/102 dt.09.04.2009. The use of PPC shall be regulated as per the following conditions stipulated in the circular dt.09.04.2009:-
  - a) IS:456-2000 Code of Practice for Plain and Reinforced Concrete (as amended upto date) shall be followed in regard to Concrete Mix Portion and its production as under:
    - (i) The concrete mix design shall be done as "Design Mix Concrete" as prescribed in clause-9 of IS 456 mentioned above.
    - (ii) Concrete shall be manufactured in accordance with clause 10 of above mentioned IS:456 covering quality assurance measures both technical and organizational, which shall also necessarily require a qualified Concrete Technologist to be available during manufacture of concrete for certification of quality of concrete.
  - b) Minimum M25 grade of concrete shall be used in all structural elements made with RCC both in load bearing and framed structure.
  - c) The mechanical properties such as modulus of elasticity, tensile strength, creep and shrinkage of fly ash mixed concrete or concrete using flyash blended cements (PPCs) are not likely to be significantly different and their values are to be taken same as those used for concrete made with OPC.
  - d) To control higher rate of carbonation in early ages of concrete both in fly ash admixed as well as PPC based concrete, water/binder ratio shall be kept as low as possible, which shall be closely monitored during concrete manufacture.

If necessitated due to low water/binder ratio, required workability shall be achieved by use of chloride free chemical admixtures conforming to IS:9103. The compatibility of chemical admixtures and super plasticizers with each set OPC, fly ash and /or PPC received from different sources shall be ensured by trails.



- e) In environment subjected to aggressive chloride or sulphate attack in particular, use of flyash admixed or PPC based concrete is recommended. In case, where structural concrete is exposed to excessive magnesium sulphate, fly ash substitution/content shall be limited to 18% by weight. Special type of cement with low C<sub>3</sub>A content may also be alternatively used. Durability criteria like minimum binder content and maximum water/binder ratio also need to be given due consideration in such environment.
- f) Wet curing period shall be enhanced to a minimum of 10 days or its equivalent. In hot & arid regions, the minimum curing period shall be 14 days or its equivalent.
- g) Subject to General Guidelines detailed out as above, PPC manufactured conforming to IS:1489 (Part-I) shall be treated at par with OPC for manufacture of Design Mix Concrete for structural use in RCC.
- h) Till the time, BIS makes it mandatory to print the %age of fly ash on each bag of cement, the certificate from the PPC manufacturer indicating the same shall be insisted upon before allowing use of such cements in works.
- i) While using PPC for structural concrete work, no further admixing of fly ash shall be permitted.
- iii) The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer-in-charge.
- iv) The cement godown of the capacity to store a minimum of 2000 bags of cement shall be constructed by the contractor at the site of work for which no extra payment shall be made. Double lock provision shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer-in-charge or his authorized representative and the keys of the other lock shall remain with the contractor. The contractor shall be responsible for the watch and ward and safety of the cement godown. The contractor shall facilitate the inspection of the cement godown by the Engineer-in-charge at any time.
- v) The cement shall be got tested by Engineer-in-charge and shall be used on work only after test results have been received. The contractor shall supply free of charge the cement required for testing. The cost of tests shall be borne by the contractor.
- vi) The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in clause 42 of the contract and shall be governed by conditions therein.
- vii) 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.
- viii) Damaged cement shall be removed from site immediately by the contractor on receipt of notice in writing from the Engineer-in-charge. If he does not do so within three days of receipt of such notice, the Engineer-in-charge shall get it removed at the cost of the contractor.

## 25.2 Special conditions for steel reinforcement bars

Only ISI marked TMT Bars of various grades shall be procured from Steel manufacturer as per the following guidelines:

- 1) All the approvals of steel manufacturers issued vide this office were withdrawn vide OM No. DG/MAN/382 dated.06.02.2019.
- 2) The Special Director General (Project Region/Region)/ADG (Project Region/Region) of respective region of CPWD shall approve the steel manufacturers subject to the eligibility criteria and other technical parameters as per OM No.DG/MAN/382 dated.06.02.2019 which is reproduced below:-

3) Eligibility criteria & other technical parameters for steel manufacturers:

The Steel manufacturer should meet the following eligibility criteria:

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

SDGs/ADGs are also authorized to approve particular steel manufacturer on suo motto in case they are satisfied with the eligibility criteria and other technical parameters of the manufacturer.

- 4) The contractor shall have to obtain and furnish test certificates to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work.
- 5) Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time or written orders from the Engineer-in-Charge to do so.
- 6) The steel reinforcement bars shall be brought to the site in bulk supply of 10 tonnes or more, or as decided by the Engineer-in-charge.
- 7) 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 this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.
- 8) For checking nominal mass, tensile strength, bend test, re-bend test etc. specimen of sufficient length shall be cut from each size of the bar at random at frequency not less than that specified below:

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

- 9) The contractor shall supply free of charge the steel required for testing including transportation to testing laboratories.
- 10) The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of steel shall be worked out as procedure prescribed in clause 42 of the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variations recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment need to be made.
- 11) The steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-charge.

**26.1** The following procedure should be followed in case of removal of rejected/sub-standard materials from the site of work.

- i) Whenever any material brought by the contractor to the site of work is rejected, entry thereof should invariably be made in the site order book under the signature of the AE/AEE giving approximate quantity of such materials.
- ii) As soon as the material is removed, a certificate to that effect may be recorded by the AE/AEE against the original entry, giving the date of removal a mode of removal i.e. whether by truck, carts or by manual labour. If removal is by truck, the registration number of the truck should be recorded.

- iii) When it is not possible for the AE/AEE to be present at the site of work at the time of actual removal of the rejected/sub-standard materials from the site the required certificate should be recorded by the Junior Engineer and the AE/AEE should countersign the certificate recorded by the Junior Engineer.

**26.2** Cement should be kept in godowns under double locks and keys and its consumption account invariably maintained, whether the cement is supplied departmentally or arranged by the contractor. A register should be maintained at the site of each work costing above Rs.20,000.00.

The pages of the register should be machine numbered and each page initialed by the EE. The cement godown and the register are required to be checked by the AE/EE in-charge of the work as per following schedule.

- i) At least weekly or fortnightly, respectively in case of works at the Headquarters of AE/EE.
- ii) Whenever they visit the site of work in case of works located outside the Sub-Divisional/Divisional Head Quarters.

**26.3** Factory made glazed steel doors, windows & ventilators shall be manufactured in a workshop approved by the Chief Engineer.

**27.** The concerned Special DGs will approve the new products for a period of two years and observe their performance. Along with the approval, SDGs will circulate brief specifications of the products including nomenclature of complete item incorporation new product. They will direct their CEs/CPMs to incorporate such products in NITs. On the basis of performance observed during the span of two years and satisfactory performance report, the Special DG will forward the complete case i.e. Nomenclature of item, Analysis of Rate and Specification for incorporating them in DSR with his/her recommendations. In case the performance of the product is not found satisfactory, the same shall be circulated to all regions for not using such products in CPWD and such products shall not be considered for approval for the next three years in entire CPWD. If the contradictory reports are received from different regions, the products shall not be considered for incorporation in DSR.

**28.** In addition to above Special conditions for steel reinforcement bars the following shall also be applicable modified guidelines for use of reinforcement bars in structures issued by the authority of DG, CPWD, New Delhi vide letter no.CSQ/SE (TAS)/EE (TAD)/Steel/2021/50 fg0 dtd.17.02.2021:-

1. The Ministry of Steel vide DO No.S-20027/13/2020-TECH dated 12.01.2021 addressed to the Secretary, MoHUA has asked CPWD to make suitable changes in steel procurement guidelines dated 27.12.2019.
2. The matter has been carefully examined in the Directorate. It has been decided to withdraw OM No.CE(CSQ)/SE(TAS)/EE(TD)/Steel/2019/497 dated 27.12.2019.
3. The modified guidelines for procurement of steel are given below:-

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

- 3.2 The contractor shall obtain manufacturer's certificate stating the process of manufacture, chemical composition and test sheet giving result of each mechanical test applicable to the material purchased and submit it to the Engineer-in-Charge. Each test certificate shall indicate the number of the cast to which is applies, corresponding to the number or identification mark to be found on the material.
- 3.3 The Engineer-in-Charge shall get each consignment tested for both chemical composition and physical properties (including bend and re-bend test) as specified in IS: 1786 from NABL accredited laboratory or any Government laboratory.
4. Reinforcement bar is one of the most important building materials. Its quality directly affects the life span, resistance to earthquake and durability of the structure. In order to ensure consistent quality of rebars, the NIT approving authority may prescribed reputed brands like SAIL, RINL, Tata, JSW, JSPL in the list of preferred makes. Only corrosion resistant steel rebars shall be used.

## **GUARANTEE BOND TO BE EXECUTED BY CONTRACTORS FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS**

This agreement made this.....day of ..... two thousand and ..... between M/s..... son of ..... of .....(hereinafter called the Guarantor of the one part) and the PRESIDENT OF INDIA (hereinafter called Government of the other part).

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

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

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

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

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

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

### **Blanks to be filled by Contractor/ EE-Patna-1**



That if GUARANTOR fails to execute the water proofing or commits breach thereunder 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 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 WITNESS WHEREOF these presents have been executed by the Obligor..... and by..... and for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

Signed, sealed and delivered by OBLIGOR in presence of-

1.

2.

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

1.

2.

### **Blanks to be filled by Contractor/ EE-Patna-1**

## APPROVED MAKE OF MATERIALS (FOR CIVIL WORKS)

Specification/brands names of materials (Refer materials, whichever are applicable for the scope of work) and finishes approved by the Architect/Engineer-in-Charge are listed below. However approved equivalent material and finishes of any other specialized firms may be used, in case it is established that the brands specified below are not available in the market but only after approval of the alternate brand by the Engineer-in-Charge. (See also condition of contract).

Sl. No.	Items	Approved Makes / Brands
1	Cement (PPC/OPC)	Ultra Tech / Ambuja / J.K. Cement/ ACC / Birla/ Century Cement
2	White Cement	J.K. White / Birla White / Utratech
3	Reinforcement Steel	Tata steel/ SAIL / RINL /JSPL / JSW/Electro steel steels ltd.
4	Structural Steel	Tata / SAIL / RINL /JSPL / JSW/Vizag steel
5	Stainless Structural Steel	Jindal Hissar / SAIL / Tata Steel
6	Welding Rods	Esab / Bohler / Advani Oerilikam / D&H / ADOR
7	Steel Nut & Bolts	Hilti / Bosch / Fischer
8	Admixtures, Plasticizers	FOSROC/ SIKA/ BASF / CICO / Asian / choksey
9	Water proofing compound	FOSROC/ SIKA/ Pidilite/ BASF/Fairmate/ MYK Laticrete/Shalimar Tar Product/Tapcrete/Cico /Accoproof/Impermo/FOSROC
10	Crystalline Water proofing compound	Penetron/Xypex/Vendex/Asian Paints/Fairmate
11	Polysuphide sealant	FOSROC / Pidilite / BASF/ SIKA/Choksey
12	Weather Silicon Sealant	Dow Corning / Wacker / GE Silicones
13	Modular Expansion Joint	Herculas /CS / Vexcolt /Devin / Sainfield , Z Tech. 3R Joints & seals
14	Autoclaved Aerated Cement blocks	Aerocon (HIL Ltd.) / Ultratech/Krish / Siporex / Magicrete / Biltech / Finecrete
15	Polymer Modified Adhesive for AAC Blocks	MYK Laticrete / Ferrouscrete / Ultratech / Aerocon / Ardex Endura/ Finecrete
16	Tile and Stone Adhesive & Grouting Compound	Fosroc / Ferrouscrete / ArdexEndura / MYK Laticrete / Pidilite/ Fairmate/ GE Bayer Silicon
17	Laminate and veneers	Greenlam / Duro / Merino / Century
18	Flush Doors / Plywood /Veneers	Green / Merino / Century /Jain Wood Industries
19	Block Board	Green / Merino / Century/ Jain Wood Industries/Duro
20	UPVC Window	Fenasta / Lingel/ Duroplast/ KOMMERLING/ Prominace/IKONISH/Rajshri/PlastOne-Aster
21	Frameless Glass Doors with SS patch fittings	Dorma / Hafele / Geze / AssaAbloy / Hettich
22	Stainless steel mortice lock, ball bearing hinges, hanging floor door stopper, magic eye) for doors (non-fire rated), SS Hinges	Dorma / Hafele / Geze / AssaAbloy / Hettich

Sl. No.	Items	Approved Makes / Brands
23	Stainless steel sliding door bolts,tower bolts, handles for doors (non- fire rated)	Hafele / Geze / AssaAbloy / Godrej
24	Hydraulic Door Closer	Dorma / Hafele / Geze /AssaAbloy / Hettich
25	Modular Kitchen Accessories	Hettich / Hafele / Blum
26	Auto sensys hinges (Stainless Steel)	Hafele / Geze / Hettich / Blum
27	False Ceiling (Metal)	Armstrong / Aerolite/ Dexune /Hunter Douglas/Hi-Steel
28	U Baffle Aluminium Panel Ceiling	Hunter Douglas / SAS / Lindner / Gordon Inc. /Hi-Steel
29	Dash Fasteners / Anchors	Hilti / Bosch / Fischer /Canon
30	Clamp System for Stone Cladding	Hilti / Bosch / Fischer
31	Float/ frosted glass, mirror glass	Saint Gobain/ Modiguard
32	Structural glazing, skylight	Saint Gobain/ Modiguard
33	Fire-Rated Glass	Saint Gobain / SCHOTT/ Glaverbel / Pyroguard
34	Hermetically sealed performance glass, Toughened glass	Saint Gobain/ Modiguard
35	Fire Door Shutter (metallic)	Navair / i-clean /Shakti Hormann / Pacific
36	Fire rated door hardware fitting	Geze / Dorma / Hafele / Hettich
37	FRP door frames and shutter	Ashish Industries / JAYNA / SIMBA
38	SS Drapery rod	Vista / Hunter Doglus / Mac
39	Roller Blinds for windows	Hunter Dougus / Vista / Mac
40	Stainless Steel Railings (knock down)	Q railing / D-line / Ozone
41	Vitrified Tiles	Kajaria / Somany/ Nitco/CERA/HINDWARE/Johnson
42	Glazed / Ceramic Tiles	Kajaria / Somany/ Nitco/CRRA/HINDWARE/ Johnson
43	Aluminium Sections	Jindal / Hindalco
44	Gypsum Plaster	Saint Gobain (Gyproc)/Ferrous Crete/ Ultratech / Asian Paints/WESTERN/Dudhi
45	Wall putty (white cement based)	Birla Wall Care Putty / JK Wall /Papers Wall Putty/WESTERN
46	P.O.P. Putty	Sakarni / Adhar Shree / JK / Ashirwad
47	Epoxy Primer and Paints / Wood Primer/ Steel Primer	Akzonobel India (ICI Dulux) / Kansai Nerolac / Asian Paints
48	Acrylic Distemper	ICI Dulux (Maxilite)/Kansai Nerolac (Narolac Acrylic) / Asian Paints (Tractor Acrylic) / Berger (Bison)
49	Plastic Emulsion Paint	ICI Dulux (Super Cover 3 in 1) / Kansai Narolac (Beauty Gold) / Asian Paints (Premium Emulsion)
50	Synthetic Enamel Paint	ICI Dulux (Dulux Hi Gloss) / Kansai Narolac (Narolac Hi Gloss) / Asian Paints (Apolite Premium Gloss)
51	Exterior Emulsion Paint	ICI Dulux (Weather Shield) / Kansai Narolac (Excel) / Asian Paints (Apex)
52	Melamine Polish	ICI Dulux / Kansai Nerolac / Asian Paints/ Timber stone melamine coating
53	Fire Paint	Akzonobel India (ICI Dulux) / Berger / Asian Paints/Promat

Sl. No.	Items	Approved Makes / Brands
54	Polyster Powder Coating	ICI Dulux / Kansai Nerolac / Asian Paints
55	Centrifugally Cast (Spun) Iron Pipes & Fittings	Neco / Saint Gobain / BIC /Hepco /SKF/RPMF
56	Centrifugally Cast (Spun) Iron Pipes Class (LA) Pipe	Neco / Tata / HEPCO/SKF/Jindal
57	UPVC Pipes & Fittings	Supreme / Finolex / Jain irrigation /Ashirwad/AGK
58	G. I. pipes	Tata/ Jindal (Hisar)/SAIL
59	G. I. pipe Fittings	Zoloto / Jindal /Unik /KS
60	SS water supply pipes and fittings	Rampart / Jindal / J-Press
61	Stainless Steel Sinks	Neelkanth / Nirali / Jayna/CERA & SENATOR
62	CP Brass Fittings	Jaquar/Kohler / Grohe / Roca/Paryware/ CERA & SENATOR
63	Vitreous China Fittings	Toto / Kohler / Grohe / Roca/ Jaquar/ CERA & SENATOR
64	HDPE Pipes	Jain Irrigation / ORIPLAST / Dutron / Reliance/Supreme/Vectus
65	Ball Valves	Zoloto / Leader / Audco / Schell
66	Non return Valves	Zoloto / Leader / Audco / Kirloskar / IVC
67	Butterfly Valves	Audco / Advance / Schell / Kirloskar
68	Water Meter	Zoloto / Leader / Audco
69	SS Floor Grating	Jayna / Chilly / Nirali / Camry
70	Interlocking precast C.C. paver blocks / Kerb Stone / Grass Paver	K.K. Manhole/ Nitco / Unistone / NTC / Ultra Tiles/Nimco Prefab/Hindustan/HINDWARE
71	Factory made wooden frames and wire gauge shutters	D.S. Doors / Jain Wood Industries /Orion Doors by modern wood tech industry
72	Polycarbonate Sheet	Danpalon / Coxwell / Sunpal / Gallina/Lexan/sabic (G E Plastics)
73	GRC Jali	Unistone / Birla/Grasim
74	Insulation	UP Twiga / Lloyd / Rock Wool
75	Acoustic treatment for walls, ceiling	Acoustics First/ Oceanz Acoustics/ H.K / Acoustical Solution Inc./ Armstrong/ Hunter Douglas/Eophon/ Dexune
76	Toilet Cubicles	Green Laminate / Marino / Century
77	Soap Dispenser	Euronics/ Kohler / Jaquar / Grohe
78	Extruded Polystyrene Board Insulation (XPS Board)	Dow Building Solutions / Owens Corning / Isofoam
79	Reinforced Soil Walls	Maccaferri / Terre Arme
80	Engineered wooden Floor	Century/ Green/Duro
81	Sports Floor	Vynal Flooring/Armstrong/LG/Tarkett
82	Laminated wooden Flooring	Armstrong/Rosselle/Floor master/Green Century/Duro
83	UPVC Door	Fenasta / Duroplast/ Aluplast/Lingel/ Prominace/IKONISH//PlastOne-Aster

Sl. No.	Items	Approved Makes / Brands
84.	Machine Moulded Wire Cut Bricks (Exposed Quality)	PIONEER/BHARAT BRICKS
85.	Curtain Rods	VISTA/MAC/HUNTER DOUGLAS
86.	Curtain Fabric	VISTA/MAC/HUNTER DOUGLAS
87.	Blinds	VISTA/MAC/HUNTER DOUGLAS
88	Anti-termite Chemical	Central Insecticide Board approved Chemical/Specialised agency should be member of IPCA. Pest Control India Ltd.
89	Epoxy	Fosroc/Sika/Choksey/BASF/Cipy
90	EPDM Waterproofing Membrane	Carlisle/Fire Stone/Soprema
91	Formwork Release Agent	Choksey/BASF/Fosroc/Sika
92	Non Shrink grout	Fosroc/Sikka/BASF
93	Non metallic grout floor hardener	Fosroc/Choksey/BASF/McBauchmie
94	Bitumen	Shalimar tar products/Mathura oil refinery
95	Oil Bound Distemper	Nerolac/Asian/ICI Dulux
96	Cement Paint	Snowcem Plus/Nerolac/Ultratech
97	Other Paints and primer	Nerolac/Asian/ ICI Dulux
98	Textured Coating/Paint	ICI Dulux/ Timberstone Melamine Coating
99	Polyurethane Paint	MRF/ Nerolac
100	Silicon Water repellent solution	GE Bayer Silicon/ Choksychemicals/Bal/ Dow Corning/ Endura/ BASF
101	Heat Resistant Tile	Thermatek / Somany/ Kajaria/Shipra Tiles
102	PVC Vinyl Flooring	Polyflor/ Ger Floor/ Armstrong/ Wonderfloor LG Floor
103	Cement Concrete tiles	Unistone/ Dazzle/ Eurocon/ NITCO/ NTC/ HINDUSTAN/ PODDAR/Vastu
104	MDF Grade-I as per IS- 12406& Ecomark	Century/ Merino/ Green ply
105	Adhesive for wood work	Dunlop/ Fevicol/ Pidilite
106	Pre-Laminated Particle Board	Century/ Marino/ Green Ply
107	Paver Block	Poddar/ Dalal/ Swastik/ Hindustan/ Vastu
108	Wax Polish	Mansion/ Reckitt & Colman
109	Polyurethane sealant	MBT/ Choksey/ Fosroc/ Pidilite/Cipy
110	Polyethylene Board, Back Up Rod	Supreme Industries
111	Furniture hardware	Hettich/ Dosrest/ Ebco/ Hafelle/ Godrej/ Oceanz Acoustics/ KQuinette/ Eurotech/HOF/ Fetheline
112	Water Stopper	Fixopan/ Caliplast
113	Aluminium composite Panel	Alucobond/ Renobond/ Alstronng
114	Asphalt Emulsion	STP/ Karnak Chemical Corporation.
115	Expansion Fastener	Hilti/ Fischer/ Canon
116	Stainless Steel	Salem/ Sail/ Jindal
117	Anchor fastener, Anchor bolts	Hilti/ Fischer/ Canon/ Armstrong
118	Gypsum Partition & Gypsum Ceiling with frame	Saint Gobain/ USG Boral/ Lafarge/WESTERN



Sl. No.	Items	Approved Makes / Brands
119	Impregnated Fibre Board	STP
120	Joint Filler and Bitumen Products	STP
121	Electrodes	Advani-Overlikon/ ESAN/ Dwekam
122	Mineral Fibre false ceiling	USG Boral/ Armstrong/ AMF
123	H.T. Bolts	Unbrako
124	Steel Door (General)	Herman Shakti Met-Dor/ Sen Harvic/ Welcome Doors/ AGEW/ Multiwin
125	Acoustical Wooden Door	Sukri/ Promat/ Navair
126	Fire Door (Wooden)	Navair/Promat/ Sukri/Shakti Met-Dor- Herman
127	Rolling Shutter	Shivam/ Milestones/ Rama/ Prakash
128	Glass wool related and related products, mineral wood	UP-Twiga/ Owens Corning/ Lloyds
129	Self-drilling Screws	Builtex/ Roofix/ Hilti
130	Logo, Signs, Name plates	D-Line/ Sign Sutra/ Creative Concepts/ Kingsign Publicity Services
131	Aluminium fittings	Hardwyn/ Hettich/ Hafele/ Crown/ Nulite/ Mccoy
132	POP	Sriram/ Birla White/ J.K.
133	Outdoor furniture ( sitting bench, dustbin)	Arihant
134	Acoustical paneling	Anutone/ Absound overseas/ Armstrong, Bose
135	Modular Toilets cubical	Merino / Century/ Greenlam.
136	Glass Mosaic tiles	Palladium/GND/ Mridul
137	Acoustical False Ceiling	Anutone/ Armstrong/ Absound overseas
138	Patch Fitting/ Spider Fitting	D-Line/ Hettich/ Dorma/ Hafele
139	Foam Concrete	Valifoalifoam/AE Foam
140	Raised/False Access Flooring	Unifloor/ Unitile LG Floor.
141	Curing compound	Fosroc/ Sika/ Cico BASF
142	Inherent Fire Retardant Fabric	Trevira CS fabric of RSWMLtd.
143	Fire retardant paint	Nullifier/Signum/Godrej
144	Fire rated vision Panels	Pilkington/Schott/ Ferilite/ Saint Gobain
145	Fire rated hardware	Dorma/BeckerFS/Assaabloy
146	Aluminium Coating/ Anodizing	NationalCoater/NationalColours/Prince Coater
147	Rebarring Chemical	Hilti/ 3M India/ Fischer/ Birla
148	Fire Sealant	Hilti/ 3M India/ Birla Fischer/ Raven
149	Intumescent Fire Seals/Door Jamb Seals	Marshall/Raven
150	Parallel Threaded Couplers (Compliant to IS:16172:2014)	Dextra/ Halfen Moment/ G-Tech
151	Extruded Polystyrene Board	Supreme/ Ownes corning/ Shalimar
152	Pebbles	River Washed
153	Duco Paint	Asian/ Mrf
154	Geofabric	Ovilite/ Virendera Textiles
155	Drain Cell	Ovilite/ Virendera Textiles
156	Synthetic Court	Sports Master/ Ebaco
157	Concrete Grass Pavers	Pave Espania/K K Manhole/Nimco



Sl. No.	Items	Approved Makes / Brands
158	Metal Baffle F/Ceiling	Hunter Douglas/ Armstrong/ Hi-steel
159	Wooden Perforated F/Ceiling	Anutone/ Armstrong
160	Acoustical Wooden Slats	Armstrong/ Anutone
161	S.S. PVD Finish Railing	Fabrinex/ Art Glass
162	Sports PVC Floor	Armstrong/ LG/ Tarkett
163	Profiled Metal Sheets	Tata BlueScope/ JSW
164	Calcium Silicate Ceiling	Armstrong(Mylar/Newtone)/Aerolite/ Ramco
165	Gypsum Board Ceiling	Saint Gobain/ USG Board /WESTERN
166	Metallic Grid Ceiling	Armstrong/ Hunter Douglas
167	Acoustical Cloud Ceiling	Anutone/ Earcon/ Armstrong
168	Acrylic Solid Surface	Corian/ LG/ Haney
169	Graphic Film	3M
170	Glass Wool Insulation	Owen corning/ UP Twiga/ Lloyds
171	PVC Corner & EDGE Beading	Arpitha/ Adhere Bonds Coats pvt. Ltd. / Dural Trims & Profile pvt. Ltd.
172	Tensile roof fabric	Mehler Technologies / Serge Ferrari
173	Modular furniture works	Wipro/ Godrej/ Steelcase
174	Concealed Cistern	HINDWARE / JAQUAR / GEBERIT
175	SS Sink	JAYNA / NIRALI / ANUPAM
176	Auto Urinal Flush System	HINDWARE / JAQUAR / KOHLER
177	Hand Drier	EURONICS / DURAVIT / KOHLER
178	GI Pipe Sealant	HENKEL – LOCTITE 55 / SUPERBOND / SEAL TITE
179	GI/MS Pipe Protection Wrapping & Coating	IWL – PYPKOTE / RUSTECH – COATEK / KIMPL
180	D.I. Pipes & Fittings	ELECTRO STEEL / SURA ENTERPRISE / JAI BALAJI INDUSTRIAL LTD. / JAINSONS
181	CPVC Pipes and Fittings	SUPREME / AASHIRWAD/AKG
182	RCC Pre-Fabricated Manholes	INDIAN HUME PIPE / JAIN SPUN / PRAGATI CONCRETE UDYOG
183	Centrifugal Cast Iron Hubless Pipe IS: 15905	SKF / NECO / BIC/HEPCO / RPMF
184	CI LA Pipes and Fittings (IS: 1536)	NECO / ELECTRO STEEL/ CALCUTTA / JINDAL SUPREME
185	CI Manhole Covers & Frames (Double Seal)	NECO / RAJ IRON FOUNDRY/BIC/ AGRA / KARTAR / GMGR
186	Sluice Valves	KIRLOSKAR / SANT / ZOLOTO / CASTLE
187	Motorized Butterfly Valve	HONEYWELL / LEHRY / ZOLOTO/ CASTLE
188	Check Valve – Dual Plate	ADVANCE / LEHRY / ZOLOTO/ CASTLE
189	Cast Iron Non Return Valve	ADVANCE / LEHRY / ZOLOTO/ CASTLE
190	NRV-Ball type – Sewage Application	DANFOSS / ZOLOTO / AUDCO/ CASTLE
191	Pressure Reducing Valve	LEHRY / HONEY WELL / DANFOSS/ CASTLE
192	Air Release Valve	CIM / ZOLOTO / RB/ CASTLE

Sl. No.	Items	Approved Makes / Brands
193	Ball Float Valve	ZOLOTO / ESSETI / RBM/ CASTLE
194	Air Vent	CIM / ADVANCE / HONEYWELL
195	Y Strainer CI	EMERALD / SANT / SKS/ CASTLE
196	Backflow Preventer	NORMEX / KESSEL / ACO
197	Drinking Water Cooler/RO Unit	BLUE STAR / VOLTAS / OASIS
198	Butterfly Valve	ZOLOTO / AUDCO / KIRLOSKER/ CASTLE
199	Pre-Fabricated HDPE Manholes	SUPREME / VECTUS / SANGIR
200	Mechanical Seal	BURGMANN / SEALOL / LEAK PACK
201	Supporting Material for piping	HILTI / FISHER/ MUPRO
202	Floor Drain Fixture & Channel Gratings	JAYNA / KESSEL / ACO
203	Modular Rain Water Harvesting	ASHWATH INFRATECH / SHREE GANGA BORING / RETAS ENVIRO
204	Irrigation Equipment	JAIN IRRIGATION / KISAN / FINOLEX
205	PVC Water tank	SINTEX / SUPREME / VECTUS
206	SS Pipe	JINDAL / APL APOLLO / GEBERIT
207	SOUND ISOLATION & VIBRATION TREATMENT FOR CEILING:	BSW/ OCEANZ ACOUSTICS/ REGUPOL
208	DOUBLE SKIN INSULATED ROOFING SYSTEM :	MULTICOLOR/ KIRBY/ TIGER STEEL
209	CARPET FLOORING:	BLOOMSBURG/ OCEANZ ACOUSTICS/ STANTON
210	POLY-SULPHIDE SEALENT	PIDILITE/ TUFFSEAL/SIKA/ FOSROC.
211	DAMP PROOF MATEIRAL	IMPERMO/ DURASEAL/ ACCO-PROOF.
212	LOCKS/LATCH	GODREJ/ HARRISON/ LINK.
213	WIRE MESH	STERLING ENTERPRISES/TRIMURTY WELDED MESH.
214	PRELAMINATED PARTICLE BOARD	GREEN PLY/MARINO/ CENTURY.
215	PVC DOOR FRAME	POLYLINE/ DUROPLAST/ POLLYWOOD/ Rajshri
216	GLASS FRP DOOR SHUTTERS	POLYLINE/ DUROPLAST/ CACTUS
217	S.S.STAIRCASE RAILING	CONNECT ARCHITECTURAL PRODUCTS PVT.LTD/ JINDAL STAINLESS STEEL LTD. / ICH INDUSTRIES/ ESSAR
218	FIRE CHECK DOOR	KUTTY DOOR/ PROMAT/GODREJ/ NAVAIR/ SHAKTI/ASES
219	SMOKE SEAL STRIP	PROMAT/ASTRO FLAME.
220	TEMPERED GLASS	PILKINTON/ SAINT GOBAIN/ ASAHI
221	EPDM GASKET	HANU/ANAND.
222	CHEQUERED TERRAZO TILES	NITCO / BHARAT/ PODDAR.
223	Glass Fibre Reinforced Gypsum (GRG) False Ceiling Tiles	Diamond Ceilings, Saint Gobain, USG Boral

NOTE :- In Case of non-availability of material in the preferred make list, Prior approval of the Engineer-in-Charge shall be taken for material of other make.

## Schedule of Quantity

**Name of Work:** C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>Part -B - Civil Component</b>					
<b>SH:</b>	<b>EARTH WORK</b>				
1.1	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge.				
1.1.1	All kinds of soil	2200.00	cum	149.00	327800.00
1.2	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, for all lift, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
1.2.1	All kinds of soil.	56.00	cum	218.60	12242.00
1.3	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, by mechanical / manual means ramming of bottoms, for all depth, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:				
1.3.1	All kinds of soil				
1.3.1.1	Pipes, cables etc, not exceeding 80 mm dia. But not exceeding 300mm dia	150.00	metre	293.40	44010.00
1.4	Filling available excavated earth (excluding rock) in trenches, plinth. sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and for all lift	2200.00	cum	161.60	355520.00
1.5	Excavating, supplying, stacking and filling of local earth (including royalty) by mechanical transport upto a lead of 5km also including ramming and watering of the earth in layers not exceeding 20 cm in foundation, trenches, plinth, sides of foundation etc. complete for all lift.	1699.00	cum	564.00	958236.00


Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
1.6	Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.				
1.6.1	All kinds of soil	368.00	cum	104.50	38456.00
1.7	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	257.00	cum	2161.20	555428.00
1.8	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	4150.00	sqm	14.50	60175.00
<b>SH:</b>	<b><u>CEMENT CONCRETE (CAST IN SITU)</u></b>				
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	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	201.00	cum	6050.65	1216181.00
2.2	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand (zone-III) derived from natural sources : 6 graded stone aggregate 20 mm nominal size derived from natural sources) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	236.00	sqm	681.65	160869.00
<b>SH:</b>	<b><u>REINFORCED CEMENT CONCRETE</u></b>				
3.1	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :				
3.1.1	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)	184.00	cum	7945.65	1462000.00
3.2	Centering and shuttering including strutting, propping etc. and removal of form for				
3.2.1	Foundations, footings, bases of columns, etc. for mass concrete.	1307.00	sqm	332.10	434055.00
3.2.2	Suspended floors, roofs, landings, balconies and access platform	1137.00	sqm	766.55	871567.00
3.2.3	Lintels, beams, plinth beams, girders, bressumers and cantilevers	1488.00	sqm	608.35	905225.00
3.2.4	Columns, Pillars, Piers, Abutments, Posts and Struts	1048.00	sqm	804.25	842854.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
3.2.5	Stairs, (excluding landings) except spiral-staircases	7.00	sqm	657.70	4604.00
3.2.6	Weather shade, Chajjas, corbels etc., including edges	49.00	sqm	821.35	40246.00
3.3	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured).				
3.3.1	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	1137.00	sqm	319.25	362987.00
3.4	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
3.4.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	99018.00	kg	89.65	8876964.00
3.5	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
3.5.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	47401.00	kg	89.65	4249500.00
3.5	Providing and fixing sheet covering over expansion joints with iron screws as per design.				
3.5.1	Aluminium fluted strips 3.15mm thick				
3.5.1.1	200 mm wide	21.00	metre	685.15	14388.00
3.6	Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge; for the following grades of concrete. Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.				
3.6.1	All works upto plinth level				
3.6.1.1	Concrete of M25 grade with minimum cement content of 330 kg /cum	634.00	cum	8683.80	5505529.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

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Item No.	Description of Items	Quantity	Unit	Rate	Amount
3.6.2	All works above plinth level upto floor V level				
3.6.2.1	Concrete of M25 grade with minimum cement content of 330 kg /cum	365.00	cum	8964.75	3272134.00
3.7	Add for using extra cement in the items of design mix over and above the specified cement content therein.	330.00	quintal	688.45	227189.00
<b>SH:</b>	<b>MASONRY WORK</b>				
4.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
4.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	118.00	cum	6658.25	785674.00
4.2	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 :				
4.2.1	Cement mortar 1:6(1 cement: 6 coarse sand)	68.00	cum	8288.40	563611.00
4.3	Half brick masonry 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.				
4.3.1	Cement mortar 1:3 (1 cement :3 coarse sand)	131.00	sqm	1043.10	136646.00
4.4	Brick work with clay flyash F.P.S. (non modular) brick of class designation 7.5 in superstructure above plinth level up to floor five level in :				
4.4.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	342.00	cum	8190.90	2801288.00
<b>SH:</b>	<b>CLADDING WORK</b>				
5.1	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels.				
5.1.1	Granite stone slab of colour black, Cherry/Ruby red				
5.1.1.1	Area of slab over 0.50 sqm	30.00	sqm	4425.35	132761.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



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Item No.	Description of Items	Quantity	Unit	Rate	Amount
5.2	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	690.00	sqm	1063.45	733781.00
5.3	(a) Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building , for all heights and all levels etc. including: Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design. (b) Providing, fabricating and supplying and fixing panels of aluminium (c) composite panel cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation. Base frame work for ACP cladding is payable under the relevant aluminium item.s The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete , as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge. However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. up to . . . . .	72.00	sqm	4474.20	322142.00
<b>SH:</b>	<b><u>WOOD AND P. V. C. WORK</u></b>				
6.1	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).				
6.1.1	Second class teak wood	0.33	cum	131576.65	43420.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



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Item No.	Description of Items	Quantity	Unit	Rate	Amount
6.2	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows, fixing with butt hinges of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer-in-charge. (Note:- Butt hinges and necessary screws shall be paid separately)				
6.2.1	Second class teak wood				
6.2.1.1	35 mm thick shutters	9.00	sqm	3704.45	33340.00
6.3	Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured). Panelling for panelled ur panelled and glazed shutters 25 mm to 40 mm thick:				
6.3.1	Second class teak wood	5.00	sqm	2998.30	14992.00
6.4	Extra for providing frosted glass panes 4 mm thick (weight not less than 10 kg per sqm) instead of ordinary float glass panes 4 mm thick (weight not less than 10 kg per sqm) in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	32.00	sqm	148.50	4752.00
6.5	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.				
6.5.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	41.00	sqm	3086.10	126530.00
6.6	Providing and fixing chromium plated brass curtain rod having wall thickness of 1.25mm with two chromium plated brass brackets fixed with C.P. brass screws and PVC sleeves etc., wherever necessary complete :				
6.6.1	25 mm dia	51.00	metre	482.30	24597.00
6.7	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.				
6.7.1	Fixed to steel windows by welding	2157.00	kg	181.00	390417.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
6.8	Providing and fixing factory made P.V.C. door frame of size 50x47 mm with awall thickness of 5 mm, made out of extruded 5mm rigid PVC foam sheet, mitred at corners and joined with 2 Nos of 150 mm long brackets of 15x15 mm M.S. square tube, the vertical door frame profiles to be reinforced with 19x19 mm M.S. square tube of 19 gauge, EPDM rubber gasket weather seal to be provided through out the frame. The door frame to be fixed to the wall using M.S. screws of 65/100 mm size, complete as per manufacturer's specification and direction of Engineer- in-Charge.	170.00	metre	408.25	69403.00
6.9	Providing and fixing factory made panel PVC door shutter consisting of frame made out of M.S. tubes of 19 gauge thickness and size of 19 mm x 19 mm for styles and 15x15 mm for top & bottom rails. M.S. frame shall have a coat of steel primers of approved make and manufacture. M.S. frame covered with 5 mm thick heat moulded PVC 'C' channel of size 30 mm thickness, 70 mm width out of which 50 mm shall be flat and 20 mm shall be tapered in 45 degree angle on both side forming styles and 5 mm thick, 95 mm wide PVC sheet out of which 75mm shall be flat and 20 mm shall be tapered in 45 degree on the inner side to form top and bottom rail and 115 mm wide PVC sheet out of which 75 mm shall be flat and 20 mm shall be tapered on both sides to form lock rail. Top, bottom and lock rails shall be provided both side of the panel. 10 mm (5 mm x 2 ) thick, 20 mm wide cross PVC sheet be provided as gap insert for top rail & bottom rail, paneling of 5 mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles & rails with 7 mm (5 mm+2 mm) thick x 15 mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5 mm thick PVC strip of 20 mm width is to be stuck on the interior side of the 'C' Channel using PVC solvent adhesive etc. complete as per direction of Engineer-in-charge, manufacturer's specification & drawing.				
6.9.1	30 mm thick plain PVC door shutters	57.00	sqm	2455.10	139941.00
6.10	Providing and fixing wire gauge shutters using stainless steel grade 304 wire gauge with wire of dia 0.5 mm and average width of aperture 1.4 mm in both directions for doors, windows and clerestory windows with necessary screws				
6.10.1	35 mm thick shutters				
6.10.1.1	With ISI marked stainless steel butt hinges of required size				
6.10.1.1.1	Kiln seasoned and chemically treated hollock wood	41.00	sqm	3429.70	140618.00
6.11	Providing and fixing bright /matt finished Stainless Steel handles of approved quality & make with necessary screws etc all complete.				
6.11.1	125 mm	134.00	each	100.45	13460.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH:</b>	<b><u>STEEL WORK</u></b>				
7.1	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer.	18.00	sqm	9397.35	169152.00
7.2	Providing and fixing M.S. Tubular frames for doors, windows, ventilators and cupboard with rectangular/ L-Type sections, made of 1.60 mm thick M.S. Sheet, joints mitred, welded and grinded finish, with profiles of required size, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.				
7.2.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	847.00	kg	146.15	123789.00
7.3	Providing and fixing circular/ Hexagonal cast iron or M.S. sheet box for ceiling fan clamp, of internal dia 140 mm, 73 mm height, top lid of 1.5 mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/ M.S. sheet box by means of 3.3 mm dia round headed screws, one lock at the corners. Clamp shall be made of 12 mm dia M.S. bar bent to shape as per standard drawing.	15.00	each	185.20	2778.00
7.4	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.				
7.4.1	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	5647.00	kg	142.30	803568.00
7.5	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.).	1000.00	kg	612.25	612250.00
7.6	Providing & fixing fly proof wire gauze to windows, clerestory windows & doors with M.S. Flat 15x3 mm and nuts & bolts complete.				
7.6.1	Stainless steel (grade 304) wire gauze of 0.5 mm dia wire and 1.4 mm aperture on both sides	53.00	sqm	971.55	51492.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH:</b>	<b>FLOORING</b>				
8.1	Chequered terrazo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :				
8.1.1	Dark shade pigment using ordinary cement	23.00	sqm	1240.75	28537.00
8.2	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, 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., complete.	182.00	sqm	1142.80	207990.00
8.3	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm 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., complete.				
8.3.1	Size of Tile 600x600 mm	644.00	sqm	1416.65	912323.00
8.4	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.				
8.4.1	Size of Tile 600x600 mm	59.00	sqm	1466.50	86524.00
8.5	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.				
8.5.1	Polished Granite stone slab colour of Black, Cherry/Ruby Red or equivalent	369.00	sqm	3908.80	1442347.00


Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH:</b>	<b>ROOFING</b>				
9.1	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	3.00	each	266.60	800.00
9.2	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.				
9.2.1	110 mm diameter	63.00	metre	319.75	20144.00
9.3	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion.				
9.3.1	Bend 87.5'				
9.3.1.1	110 mm bend	15.00	each	132.00	1980.00
9.3.2	Shoe (Plain)				
9.3.2.1	110 mm Shoe	15.00	each	115.95	1739.00
9.4	Providing and fixing unplasticised PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement: 4 coarse sand) and making good the wall etc. complete.				
9.4.1	110 mm	60.00	each	310.85	18651.00



Item No.	Description of Items	Quantity	Unit	Rate	Amount
9.5	Providing and Fixing 15 mm thick densified tegular edged eco friendly light weight calcium silicate false ceiling tiles of approved texture of size 595 x 595 mm in true horizontal level, suspended on inter locking metal grid of hot dipped galvanised steel sections (galvanising @ 120 grams per sqm including both side) consisting of main 'T' runner suitably spaced at joints to get required length and of size 24x38 mm made from 0.33 mm thick (minimum) sheet, spaced 1200 mm centre to centre, and cross "T" of size 24x28 mm made out of 0.33 mm (Minimum) sheet, 1200 mm long spaced between main'T' at 600 mm centre to centre to form a grid of 1200x600 mm and secondary cross 'T' of length 600 mm and size 24 x28 mm made of 0.33 mm thick (Minimum) sheet to be inter locked at middle of the 1200x 600 mm panel to from grid of size 600x600 mm, resting on periphery walls /partitions on a Perimeter wall angle pre-coated steel of size(24x24X3000 mm made of 0.40 mm thick (minimum) sheet with the help of rawl plugs at 450 mm centre to centre with 25 mm long dry wall screws @ 230 mm interval and laying 15 mm thick densified edges calicum silicate ceiling tiles of approved texture in the grid, including, cutting/ making opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc., wherever required. Main 'T' runners to be suspended from ceiling using G.I. slotted cleats of size 25x35x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm G.I. adjustable rods with galvanised steel level clips of size 85 x 30 x 0.8 mm, spaced at 1200 mm centre to centre along main 'T', bottom exposed with 24 mm of all Tsections shall be pre-painted with polyster baked paint, for all heights, as per specifications, drawings and as directed by Engineer-in-Charge. Note :- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening (cut outs) having area less than 0.30 sqm.The calcium silicate ceiling tile shall have NRC value of 0.50 (Minimum), light reflection > 85%, non- combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity <0.043 w/mK.	48.00	sqm	1718.70	82498.00
<b>SH:</b>	<b><u>FINISHING</u></b>				
10.1	12 mm cement plaster of mix :				
10.1.1	1:6 (1 cement: 6 coarse sand)	1876.00	sqm	294.35	552201.00
10.2	15 mm cement plaster on rough side of single or half brick wall of mix:				
10.2.1	1:6 (1 cement: 6 coarse sand)	2538.00	sqm	339.10	860636.00
10.3	12 mm cement plaster finished with a floating coat of neat cement of mix :				
10.3.1	1:4 (1 cement: 4 fine sand)	124.00	sqm	361.30	44801.00
10.4	6 mm cement plaster of mix :				
10.4.1	1:3 (1 cement : 3 fine sand)	2843.00	sqm	253.05	719421.00
10.5	Finishing walls with textured exterior paint of required shade :				
10.5.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	3399.00	sqm	245.00	832755.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

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Item No.	Description of Items	Quantity	Unit	Rate	Amount
10.6	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
10.6.1	Two or more coats on new work	162.00	sqm	131.45	21295.00
10.7	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.	7256.00	sqm	123.85	898656.00
10.8	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.				
10.8.1	Two coats	3858.00	sqm	119.20	459874.00
10.9	Applying priming coats with primer of approved brand and manufacture, having tow VOC (Volatile Organic Compound) content.				
10.9.1	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre	3858.00	sqm	62.45	240932.00
<b>SH:</b>	<b><u>ROAD WORK</u></b>				
11.1	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the subgrade and disposal of surplus earth with lead upto 50 metres.	450.00	sqm	180.50	81225.00
11.2	Supplying at site Angle iron post & strut of required size including bottom to be split and bent at right angle in opposite direction for 10cm length and drilling holes upto 10 mm dia. etc. complete.	783.00	kg	99.95	78261.00
11.3	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length ( total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape (R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	312.00	metre	303.65	94739.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



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Item No.	Description of Items	Quantity	Unit	Rate	Amount
11.4	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not be more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	9.00	cum	8613.55	77522.00
11.5	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator, vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately). (Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).	90.00	cum	8964.00	806760.00
11.6	Construction of granular sub-base by providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in-Charge.				
11.6.1	With material conforming to Grade-II (size range 53 mm to 0.075 mm) having CBR Value-25	110.00	cum	2775.65	305322.00
11	Providing and laying matt finished vitrified tile of size 300x300x9.8mm having water absorption less than 0.5% and conforming to IS:15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi-modal location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	24.00	sqm	1250.75	30018.00
11.9	Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8mm having water absorption less than 0.5% and conforming to IS:15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi-modal location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	3.00	sqm	1719.00	5157.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
11.10	Providing and laying factory made chamfered edge Cement Concretepaver blocks in footpath, parks, lawns, drive ways or light trafficparking etc, of required strength, thickness & size/ shape, made bytable vibratory method using PU mould, laid in required colour &pattern over 50mm thick compacted bed of sand, compacting andproper embedding/laying of inter locking paver blocks into the sandbedding layer through vibratory compaction by using plate vibrator,filling the joints with sand and cutting of paver blocks as per requiredsize and pattern, finishing and sweeping extra sand. complete all asper direction of Engineer-in-Charge.				
11.10.1	80 mm thick C.C. paver block of M-30 grade with approvedcolor design and pattern.	100.00	sqm	1011.20	101120.00
<b>SH:</b>	<b>SANITARY INSTALLATIONS</b>				
12.1	Providing and fixing water closet squatting pan (Indian type W.C.pan ) with 100 mm sand cast Iron P or S trap, 10 litre low level whiteP.V.C. flushing cistern, including flush pipe, with manually controlleddevice (handle lever) conforming to IS : 7231, with all fittings andfixtures complete, including cutting and making good the walls andfloors wherever required:				
12.1.1	White Vitreous china Orissa pattern W.C. pan of size580x440 mm with integral type foot rests	6.00	each	5781.35	34688.00
12.2	Providing and fixing white vitreous china pedestal type water closet(European type W.C. pan) with seat and lid, 10 litre low level whiteP.V.C. flushing cistern, including flush pipe, with manually controlleddevice (handle lever), conforming to IS : 7231, with all fittings andfixtures complete, including cutting and making good the walls andfloors wherever required :				
12.2.1	W.C. pan with ISI marked white solid plastic seat and lid	13.00	each	5540.55	72027.00
12.3	Providing and fixing white vitreous china flat back half stall urinal ofsize 580x380x350 mm with white PVC automatic flushing cistern,with fittings, standard size C.P. brass flush pipe, spreaders withunions and clamps (all in C.P. brass) with waste fitting as per IS :2556, C.I. trap with outlet grating and other couplings in C.P. brass,including painting of fittings and cutting and making good the wallsand floors wherever required :				
12.3.1	Single half stall urinal with 5 litre P.V.C. automaticflushing cistern	5.00	each	10128.30	50642.00
12.4	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brasspillar taps, 32 mm C.P. brass waste of standard pattern, includingpainting of fittings and brackets, cutting and making good the wallswherever require:				
12.4.1	White Vitreous China Wash basin size 630x450 mmwith a single 15 mm C.P. brass pillar tap	4.00	each	1913.75	7655.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



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Item No.	Description of Items	Quantity	Unit	Rate	Amount
12.5	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink asper IS:13983 with C.I. brackets and stainless steel plug 40 mm,including painting of fittings and brackets, cutting and making goodthe walls wherever required :				
12.5.1	Kitchen sink with drain board				
12.5.1.1	510x1040 mm bowl depth 250 mm	1.00	each	6008.45	6008.00
12.6	Providing and fixing P.V.C. waste pipe for sink or wash basin includingP.V.C. waste fittings complete.				
12.6.1	Flexible pipe				
12.6.1.1	32 mm dia	23.00	each	104.35	2400.00
12.7	Providing and fixing 600x450 mm beveled edge mirror of superiorglass (of approved quality) complete with 6 mm thick hard boardground fixed to wooden cleats with C.P. brass screws and washerscomplete.	4.00	each	1411.15	5645.00
12.8	Providing and fixing mirror of superior glass (of approved quality) andof required shape and size with plastic moulded frame of approvedmake and shade with 6 mm thick hard board backing :				
12.8.1	Rectangular shape 1500x450 mm	6.00	each	1817.20	10903.00
12.9	Providing and fixing toilet paper holder:				
12.9.1	C.P. brass	20.00	each	680.80	13616.00
12.10	Providing and fixing soil, waste and vent pipes :				
12.10.1	100 mm dia				
12.10.1.1	Hubless centrifugally cast (spun) ironpipes epoxy coated inside & outsideIS:15905	150.00	metre	1061.25	159188.00
12.11	Providing and fixing bend of required degree with access door, insertionrubber washer 3 mm thick, bolts and nuts complete.				
12.11.1	100 mm dia				
12.11.1.1	Hubless centrifugally cast (spun) ironepoxy coated inside & outside as perIS:15905	42.00	each	550.80	23134.00
12.12	Providing and fixing plain bend of required degree.				
12.12.1	100 mm dia				
12.12.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside et outside 15:15905	42.00	each	346.10	14536.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
12.13	Providing and fixing double equal plain junction of required degree.				
12.13.1	100x100x100x100 mm				
12.13.1.1	Hubless centrifugally cast (spun) ironpipes epoxy coated inside & outsideIS:15905	20.00	each	720.70	14414.00
12.14	Providing and fixing single equal plain junction of required degree				
12.14.1	100x100x 100 mm				
12.14.1.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	20.00	each	573.55	11471.00
12.15	Providing and fixing terminal guard :				
12.15.1	100 mm				
12.15.1.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as perIS:15905	20.00	each	399.60	7992.00
12.16	Providing and fixing shielded coupling for Hubless centrifugally castiron pipe				
12.16.1	100 mm dia				
12.16.1.1	SS 304 grade coupling with EPDM rubbergasket	80.00	each	406.30	32504.00
12.17	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:				
12.17.1	100 mm inlet and 100 mm outlet				
12.17.1.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as perIS:15905	23.00	each	760.85	17500.00
12.18	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour, weighing not less than 105 gms.	11.00	each	146.25	1609.00
12.19	Providing and fixing white vitreous china extended wall mountingwater closet of size 780x370x690 mm of approved shape includingproviding & fixing white vitreous china cistern with dual flush fitting,of flushing capacity 3 litre/ 6 litre (adjustable to 4 litre/ 8 litres),including seat cover, and cistern fittings, nuts, bolts and gasket etccomplete.	1.00	each	13036.55	13037.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH:</b>	<b>WATER SUPPLY</b>				
13.1	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.				
13.1.1	20 mm nominal dia Pipes	120.00	metre	512.40	61488.00
13.1.2	25 mm nominal dia Pipes	70.00	metre	624.70	43729.00
13.2	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. Internal work - Exposed on wall				
13.2.1	32 mm dia nominal bore	60.00	metre	563.55	33813.00
13.3	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. External work				
13.3.1	50 mm dia nominal bore	40.00	metre	654.20	26168.00
13.4	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
13.4.1	32 mm nominal bore.	5.00	each	589.90	2950.00
13.4.2	50 mm nominal bore	4.00	each	878.25	3513.00
13.5	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
13.5.1	25 mm nominal bore	3.00	each	399.15	1197.00
13.6	Providing and fixing uplasticised PVC connection pipe with brass unions :				
13.6.1	45 cm length				
13.6.1.1	15 mm nominal bore	43.00	each	85.15	3661.00
13.7	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet :				
13.7.1	150 mm diameter	11.00	each	190.10	2091.00
13.8	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 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.	10000.00	per litre	9.70	97000.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
13.9	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.				
13.9.1	15 mm nominal bore	20.00	each	715.05	14301.00
13.10	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.				
13.10.1	15 mm nominal bore	12.00	each	594.75	7137.00
13.11	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931				
13.11.1	15mm nominal bore	46.00	each	500.35	23016.00
<b>SH: DRAINAGE</b>					
14.1	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
14.1.1	150 mm dia. R.C.C. pipe	150.00	metre	493.10	73965.00
14.2	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone-III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4(1 cement 7 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design 7				
14.2.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :				
14.2.1.1	With common burnt clay F.P.S. (non modular) bricks of Class designation 7.5	18.00	each	11530.20	207544.00
14.3	Extra for depth for manholes :				
14.3.1	Size 90x80 cm				
14.3.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	4.00	metre	8127.45	32510.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
14.4	Making soak pit 2.5 m diameter 3.0 metre deep with 45 x 45 cm dry brick honey comb shaft with bricks and S.W. drain pipe 100 mm diameter, 1.8 m long complete as per standard design.				
14.4.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	1.00	each	26254.80	26255.00
<b>SH:</b>	<b>ALUMINIUM WORK</b>				
15.1	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 I 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) :				
15.1.1	For fixed portion				
15.1.1.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	2876.00	kg	466.30	1341079.00
15.1.2	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)				
15.1.2.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	3220.00	kg	553.55	1782431.00
15.2	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):				
15.2.1	With float glass panes of 4.0 mm thickness (weight not less than 10kg/sqm)	115.00	sqm	1019.80	117277.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH:</b>	<b><u>WATER PROOFING</u></b>				
16.1	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 :				
16.1.1	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	1148.00	sqm	1502.95	1725387.00
<b>SH:</b>	<b><u>RAIN WATER HARVESTING &amp; TUBEWELLS</u></b>				
17.1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level.				
17.1.1	All types of soil				
17.1.1.1	400 mm dia	90.00	metre	828.95	74606.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
17.2	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre & upto 150 metre depth below ground level.				
17.2.1	All types of soil				
17.2.1.1	400 mm dia	60.00	metre	1036.20	62172.00
17.3	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	15.00	cum	1479.25	22189.00
17.4	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/plain ended casing pipes of required dia, conforming to IS: 4270, of reputed & approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer-in-charge.				
17.4.1	150 mm nominal size dia having minimum wall thickness 5.00 mm	80.00	metre	1675.80	134064.00
17.4.2	200 mm nominal size dia having minimum wall thickness 5.40 mm	30.00	metre	2082.10	62463.00
17.5	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/ plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge.				
17.5.1	150 mm nominal size dia	40.00	metre	1790.00	71600.00


Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

Item No.	Description of Items	Quantity	Unit	Rate	Amount
17.6	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	12.00	hour	916.80	11002.00
17.7	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:				
17.7.1	200 mm dia	1.00	each	280.95	281.00
17.8	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.				
17.8.1	200 mm clamp	4.00	each	1827.00	<u>7308.00</u>
				Total-	54623955.00
	<b>Add GST @18% instead of 12% (multiplying factor = 1.0633)</b>			<b>Total-</b>	<b>58081651.00</b>
	Add @15% Cost Index on DSR'21 only.				<u>8712248.00</u>
				<b>Total-</b>	<b>66793899.00</b>
<b>SH:</b>	<b><u>Non-Schedule</u></b>				
18.1	Providing and fixing IS : 12817 marked stainless steel sliding door bolts of Cliff brand or equivalent with nuts and screws etc. complete :				
18.1.1	300x16 mm	58.00	each	601.70	34899.00



Item No.	Description of Items	Quantity	Unit	Rate	Amount
18.2	Providing and fixing IS : 12817 marked stainless steel tower bolts of Jon brand or equivalent with necessary screws etc. complete :				
18.2.1	300x10 mm	40.00	each	401.03	16041.00
18.2.2	150x10 mm	40.00	each	220.35	8814.00
18.3	Providing and fixing IS : 12817 stainless steel pull bolt lock with necessary screws bolts, nut and washers etc. complete.	74.00	each	177.01	13099.00
18.4	Providing and fixing IS : 12817 stainless steel hanging floor door stopper with necessary screws etc. complete.				
18.4.1	Twin rubber stopper	47.00	each	224.33	10544.00
18.5	Providing and fixing IS: 12817 marked stainless steel mortice latch of Godrej brand (Gloria 20 CM 1 CK Mortise 8220) or equivalent with necessary screws etc.	17.00	each	5329.68	90605.00
18.6	Providing and fixing glass shelf 600mm long of Jaguar brand (CAN-CHR-1171N) or equivalent with edges round off, supported on fixed with 40mm long screws, rawl plugs etc., complete.	18.00	each	2096.04	37729.00
18.7	Providing and fixing towel ring square shape of Jaquar brand (AKP-35721P) or equivalent as per direction of Engineer in Charge.	18.00	each	2567.49	46215.00
18.8	Providing and fixing stainless steel towel rail of Jaquar brand (CAN-1111SM) or equivalent complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved.				
18.8.1	600mm long towel rail	11.00	each	1991.51	21907.00

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL

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Item No.	Description of Items	Quantity	Unit	Rate	Amount
18.9	Providing and fixing one set Handicaped toilet fittings which include Wash Basin 460x360mm with one pair mounting brackets, EWC and Cistern Complete with fittings and seat cover, One no. Hinged Rail 76 cm and 4 Nos. of Grab rails 60 cm. etc complete as per direction of Engineer-in-charge.	1.00	each	65992.00	65992.00
18.10	Providing and fixing stainless steel grating of approved quality and colour.				
18.10.1	Square type				
18.10.1.1	125 mm nominal dia	46.00	each	156.60	7204.00
18.11	Providing and fixing (counter sunk) wash basin with C.I. brackets, single 15 mm C.P. brass pillar tap , 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:				
18.11.1	White Vitreous China Wash basin (make jaguar CNS-WHT-705) or equivlent with a single 15 mm C.P. brass pillar tap (make jaguar PRS-CHR-031) or equivlent .	18.00	each	7708.00	<u>138744.00</u>
Total (Sub-heads 1 to 18) for Civil Component i/c Cost Index					<u>67285692.00</u>

Name of the Firm:-	**
--------------------	----

Sr. No.	Option (Only one coloured box should be filled by the Tenderer)	% in Figures	In Words
1	Percentage below on Estimated Cost put to tender	**	
2	Percentage above on Estimated Cost put to tender	**	
3	At par of Estimated Cost put to tender (the quoted percentage should be mentioned "0" in figures columns and "ZERO PERCENT" in words column)	**	

\*\* To be filled by Agency

Addition - (A) NIL  
Deletion - (D) NIL  
Correction - (C) NIL  
Omission - (O) NIL



Contact for Tender Filling and Documentation  
Mob No.: +91 - 9630030343  
Helpline: - 18008892553  
Email ID:- proposal@tenderstime.com  
Website:- www.tenderstime.com



## PART-C for Electrical Component

CPWD-7

CPWD

### GOVERNMENT OF INDIA CENTRAL PUBLIC WORKS DEPARTMENT

#### Percentage Rate Tender/~~Item Rate Tender~~ & Contract for Works

(A) Tender for the work of:-

**“C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.”**

- (i) To be uploaded by **15:00** hours on **10.10.2023** to/upload at **https://etender.cpwd.gov.in** and **www.cpwd.gov.in**.
- (ii) To be opened in presence of tenderers who may be present at **15:30** hours on **10.10.2023** in the office of **Executive Engineer Patna-1, CPWD, Patna.**

### TENDER

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

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

I/We agree to keep the tender open for 30 days from the due date of its opening in case of single bid system ~~75 days from the date of opening of technical bid in case tenders are invited on 2 /3 bid/ system for specialised work~~ and not to make any modification in its terms and conditions.

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

\* Blanks to be filled by EE Patna-1

**CPWD-7**

**CPWD**

A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a Commercial Bank is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/ We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

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

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

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

**Dated: .....\*\* .....**

**Signature of Contractor \*\***

**Witness: \*\***

**Address: \*\***

**Postal Address \*\***

**Occupation: \*\***

**\*\* To be filled by Contractor**

**CPWD-7**

**CPWD**

### ACCEPTANCE

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

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** .....\*

**\* Blanks to be filled by EE Patna-1**

**PROFORMA OF SCHEDULES**

**CPWD**

**PROFORMA OF SCHEDULES**

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

**SCHEDULE 'A'**

Schedule of quantities (as per PWD-3)

: Page no. **E-49** to **E-65**

**SCHEDULE 'D'**

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

: **NIL**

**SCHEDULE 'E'**

Reference to General Conditions of Contract

: **General Condition of Contract 2020 for Construction work with amendments upto the last date of submission of bids.**

Name of Work : **"C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar."**

Estimated cost of work

(a)	Civil Component	:	
(b)	Electrical Component	:	
	Total	:	<b>As per Part-A</b>
(i)	Earnest Money	:	
(ii)	Performance Guarantee	:	
(iii)	Security Deposit	:	

**SCHEDULE 'F'**

**GENERAL RULES & DIRECTIONS**

Officer inviting bid

: **As per Part-A**

~~Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3. See below~~

Definitions

<b>2(v)</b>	Engineer-in-Charge	:	<b>Executive Engineer (E) Patna, CPWD, Patna</b>
<b>2(viii)</b>	Accepting Authority	:	<b>Chief Engineer (Patna), CPWD, Patna</b>
<b>2(x)</b>	Percentage on cost of materials and labour to cover all overheads and profits:	:	<b>15%</b>



**PROFORMA OF SCHEDULES**

**CPWD**

**2(xi) Standard Schedule of Rates : DSR 2022 (E&M works) & Market Rates for Non DSR Items for Electrical Items**

**2(xii) Department : CPWD**

**9(ii) Standard CPWD Contract Form GCC 2020, CPWD Form 7 as modified & corrected upto : As per Part-A**

**Clause 1**

**(i) Time allowed for submission of Performance Security, Programme Chart (Time and progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance : As per Part-A**

**(ii) Maximum allowable extension with late fee @0.1% per day of Performance Guarantee amount beyond the period provided in (i) above : As per Part-A**

**Clause 2**

**Authority for fixing compensation under clause 2 : Chief Engineer (Patna), CPWD, Patna**

**Clause 2A**

**Applicable clause 2/Clause 2A : As per Part-A**

**Clause 5**

**Number of days from the date of issue of letter of acceptance or handing over of site whichever is later for reckoning date of start Mile stone(s) as per table given below:- : As per Part-A**

S. N o.	Description of Milestone (Physical)	Time allowed in months (from date of start)	Amount to be with-held in case of non achievement of mile stone
<b>As per Part-A</b>			

**Time allowed for execution of work**

**As per Part-A**

**Authority to decide:**

**(i) Extension of time : As per Part-A**

**(ii) Rescheduling of mile stones : As per Part-A**

**PROFORMA OF SCHEDULES**

**CPWD**

- (iii) Shifting of date of start in case of delay in : **As per Part-A**  
handing over of site

**PROFORMA OF SCHEDULES Clause 5 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	--	<b>Available</b>
Part B	Portions with encumbrances	--	<b>N. A.</b>
Part C	Portions dependent on work of other agencies	--	<b>N. A.</b>

**Clause 6**

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

Mode of Measurement : **As per Part-A**

**Clause 7**

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

**Rs. 15.00 lacs**

**Clause 7A**

Whether clause 7A shall be applicable : **As per Part-A**

**Clause 8A**

Authority to decide compensation on account if : **As per Part-A**  
contractor fails to submit completion plans

**Clause 10A**

List of testing equipment to be provided : 1.  
by the contractor at site lab

**Clause 10B(ii)** Whether Clause 10 B (ii) shall be applicable **As per Part-A**

**Clause 10C**

**As per Part-A**

Component of labour expressed as percent of value of work : **15%**

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 10CC**

----

**As per Part-A**

**A. For construction period**

S.No.	Relevant component of Material /Labour for price escalation	Percentage of total value of work
1.	Cement component	....%
2.	Labour component	....%
3.	Civil component of other Construction Materials	....%
4.	E&M (Electrical and Mechanical) component of Construction Materials	....%
5.	POL (Diesel) component	....%
6.	Reinforcement steel bars/TMT bars/structural steels (including strands and cables) component	....%
7.	Bitumen component	....%
	Total	....%

**A. For maintenance period**

S.No.	Relevant component of Material /Labour for price escalation	Percentage of total value of work
1.	Labour component	--
2.	Civil component of other Construction Materials	--
3.	E&M (Electrical and Mechanical) component of Construction Materials	--
4.	Bitumen component (For Road work component)	--
	Total	--

**Clause 11**

Specifications to be followed for execution of work

(a) CPWD General Specifications for electrical Works with correction slips up to last date of submission of tender.

1. Part I Internal 2023 with correction slips up to last date of submission of tender.
  2. Part II (External) 2023,
  3. Part III – (Lifts & Escalators) – 2003
  4. Part IV (Sub Station) 2013
  5. Part V (Wet Riser & Sprinkler system) 2020
  6. Part VI Fire Detection and Alarm System 2018
  7. Part VII D.G. Sets - 2013.
  8. Part VIII Gas Based Fire Extinguishing System – 2013
  9. Heating, Ventilation & Air Conditioning (HVAC) – 2017
  10. INDIAN ELECTRICITY RULE 1956
  11. GUIDELINESFOR SUBSTATION AND POWER DISTRIBUTION SYSTEM OF BUILDINGS 2019
  - (b) National Building Code 2016
  - (c) Harmonized guidelines and space standards for Barrier free built environment for persons with disability and elderly persons Feb 2016.
  - (d) CPWD Green Rating Manual 2019.
- (All above specification with upto amendment )

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 12**

	Authority to decide deviation upto 1.5 times of tendered amount	<b>As per Part-A</b>
12.2. & 12.3	Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work	<b>As per Part-A</b>
12.5	(i) Deviation limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)	<b>As per Part-A</b>
	(ii) Deviation limit for items mentioned in earth work subhead of DSR and related items	<b>As per Part-A</b>

**Clause 16**

Competent Authority for deciding reduced rates:- **Chief Engineer (Patna), CPWD, Patna**

**Clause 18**

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

1. Drill machine	-	2 Nos
2. Hand Blower/ Vacuum Cleaner	-	1No
3. Chase Cutting Machine	-	3 Nos
4. Crimping Tool Kit	-	1 No
5. Self Supporting Ladder	-	5 Nos
6. Magnifying Glass	-	2 Nos

<b>Clause 19 C</b>	<b>Executive Engineer (E) Patna, CPWD, Patna authority to decide penalty for each default.</b>
<b>Clause 19D</b>	<b>Executive Engineer (E) Patna, CPWD, Patna authority to decide penalty for each default.</b>
<b>Clause 19 G</b>	<b>Executive Engineer (E) Patna, CPWD, Patna authority to decide penalty for each default.</b>
<b>Clause 19K</b>	<b>Executive Engineer (E) Patna, CPWD, Patna authority to decide penalty for each default.</b>

**PROFORMA OF SCHEDULES**

**CPWD**

**Clause 25**

(i)	Conciliator	:	<b>As per Part-A</b>
(ii)	Arbitrator Appointing Authority	:	
(iii)	Place of Arbitration	:	

**Clause 32**

**Requirement of Technical Representative(s) and recovery Rates are as below**

S. No.	Minimum Qualification of Technical Representative	DISCIPLINE	Designation (Principal Technical/ Technical Representative)	Minimum Experience (Years)	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figure	Words
As per Part-A							

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 printed by C.P.W.D. : **DSR 2022 (E&M works) & Market Rates for Non DSR Items for Electrical Items**
- (ii) Variations permissible on theoretical quantities:
- (a) Cement
- For works with estimated cost put to tender not more than Rs.25 lakh. :
- For work with estimated cost put to tender more than Rs.25 lakh. :
- (b) Bitumen All Works : **As per Part-A**
- (c) Steel Reinforcement and structural steel sections for each diameter, section and category :
- (d) All other materials :

**UNDERTAKING REGARDING ELECTRICAL LICENSE**  
**(To be uploaded with the Bid)**

To  
The Executive Engineer,PCD,  
CPWD,  
Patna-800025

**Name of Work:- C/o Rural Self Employment Training Institutes (RSETIS) PNB at Gaya, Bihar. (SH:- Electrical work.).**

Sir,

Having examined the details given in press notice and bid document for the above work, I/we hereby submit the following:

**"I / We hereby certify that I / we will either obtain valid electrical license at the time of execution of electrical work or associate Contractor having valid electrical license of eligible class as per the eligibility criteria".**

Seal of bidderDate:

Signature(s) of Bidder(s)



**ELIGIBILITY CRITERIA OF ASSOCIATED ELECTRICAL AND SPECIALIZED AGENCIESTO BE ASSOCIATED BY MAIN CONTRACTOR FOR EXECUTING THE ELECTRICAL SUB-HEADS (ELECTRICAL AND SPECIALIZED COMPONENTS OF ELECTRICAL WORKS)**

1. After award of work , the main contractor will have to submit Name (s) of the proposed associate contractor (for each of the E&M works), who fulfill the eligibility criteria for the relevant sub-head mentioned in the NIT , in complete shape within Fifteen Days after awardof the work.
2. The department reserves the right to allow the main firm to submit additional Documents  
/additional names of the associate agencies in case of the deficiencies in documents or in case of no associate getting qualified in respect of certain subheads. The same will have to be complied with the main contractor within the time allowed to him promptly. The decision of the department shall be firm & binding on the Main Contractor.
3. However, the Main contractor shall also be eligible to carry out himself /herself any or all of the above Electrical & specialized works without associating any Electrical/specialized agency provided that :-  
(a) The main agency fulfills the prescribed eligibility criteria respectively for the Electrical/specialized work(s).
4. The main firm should submit the willingness from eligible electrical & specialized agencies to get associated with them for execution of the electrical/ Specialized components of works in wholesome manner, As per the Format given at "Form-X" on Letter Head of Associated Agency in Original and details of similar works as per Form-Z, along with submission of Eligibility Documents.
5. In support of the eligibility conditions of the proposed associated electrical & specialized Agency , self attested copy of their CPWD registration documents (if applicable), Electrical Contractor's License (if applicable), GST documents, eligibility work experience documents( Completion Certificate issued by competent authority & by an officer not below the rank of Executive Engineer/Project Manager or equivalent, of owner of the building with following details, shall have to be submitted. Such associate electrical & Specialized Agency will certify that they are not debarred as on the day of submission of the tender.  
" a) Name of work, b) Scope of Work, c) Agreement No., d) Estimated Cost, e) Tendered Cost, f) Final Value of Work Done, g) Date of Start, h) Stipulated date of Completion, i) Actual date of completion, j) Nature of the Work etc. (In case some of above said details are not mentioned in the Completion certificate/work experience certificate, then the firm shall attach sample proof in support of above details)."  
The above Completion Certificate should be issued by the owner of the building/ Executing Authority/department of above work . But the completion certificate issued by Main Contractor to Sub Contractor/Associated Contractor will not be acceptable/considered.
6. After approval of associated Electrical/specialized agencies by CE(Patna), the main contractor will submit MOU signed with the associated electrical/specialized agency as per FORM-Y in shape of affidavit on stamp paper duly attested by notary in

original to EE(E) in charge of work as well as to EE(C) In case of change of associate contractor within 7 (Seven) Days after issue of approval letter (for associate electrical/specialized agency). The MOU shall be signed by both the parties" i.e. main contractor as 1st party and associated

electrical/specialized Agency as 2nd party, independently for all electrical/specialized work(s).

7. In the event of the concerned Associated electrical/specialized Agency not performing satisfactorily or failure to complete the electrical/specialized works(s), the main contractor on written directions of the Engineer-in-charge, shall remove the Associated electrical/specialized Agency deployed on the work and shall submit name of new associated electrical/Specialized Agency as per eligibility criteria mentioned in the NIT to execute the left over electrical/specialized work(s) without any loss of time after completion of all formalities mentioned in above in Sl. No. 1, 4, 5 & 6.
8. Also if main contractor wants to change the associated electrical/specialized agency during the currency of the contract he shall submit name of new associated electrical/Specialized Agency per eligibility criteria mentioned in the NIT to execute the left over electrical/ specialized work(s) after completion of all formalities mentioned as above in Sl.No.1, 4, 5 & 6.
9. All technical discussions during currency of the contract, shall be attended by the associated electrical/specialized agencies and the main contractor. Commercial/Technical submissions for the specialized work(s) shall be signed and submitted by the associate electrical/ specialized agencies along with the main contractor.
10. The associated electrical/specialized agencies and the main contractor shall attend the site during inspection of the work by the Engineer-in-Charge or higher authority.
11. The main contractor shall be entirely responsible and answerable for all the works done by his associated specialized/electrical agency regarding their quality, adherence to the laid down specification, terms and conditions, warranty/guarantee etc as per the agreement and he shall be liable to bear any compensation that may be levied by the department under any of the clauses of the agreement.
12. The main contractor shall be responsible and liable for proper and complete execution of the Electrical & Mechanical work and ensure coordination and completion of both civil and electrical work.
13. Running payment for the work shall be made to the main contractor. In case main contractor fails to make the payment to the associated electrical/specialized agency(s) by him within 15 days of receipt of each running account payment then on the written complaint of any associated electrical/specialized agency(s) for such work, Engineer-in-Charge shall serve the show cause to main contractor and after considering the reply of the same he may make the payment directly to the concerned associated electrical/specialized agency(s) for the work as per the terms & conditions of the agreement/M.O.U. drawn between main contractor and associated electrical/specialized agency fixed by him, if reply of main contractor either not received or found unsatisfactory. Such payment made to the associated electrical/specialized agency(s) shall be recovered by Engineer-in-Charge from the next RA/final bill due to main contractor as the case may be.

12. For components of E&M works, the eligibility criteria for electrical/specialized agencies to be associated by the main contractor after award of work will be as detailed below:

- (a) The firm should have successfully completed similar works during the last 7 years ending upto last day of previous month of last date of submission of tender , for each sub heads:
- (b) The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the last day of previous month of last date of submission of tender.

**NOTE: For the purpose of eligibility criteria only, sub-head wise total cost is taken as below which is rough cost and should not be used or interpreted for any other purpose.**

S. Nos	Name of Sub-Head	App. Cost of Component in lac.	Eligibility criteria	Similar Work
1	Internal & External E.I.	`47.99	The Associated Agency should be registered with CPWD in eligible Class and Should have valid Electrical Contractor License. (However in case of Main Contractor intend to execute himself, then the Main contractor should have valid Electrical Contractor License only)	
2	Fire Extinguisher	`1.44	.....do.....	SITC of Fire Extinguisher
3	Smart Class Room	`9.30	.....do.....	SITC of Audio-Video System
4	CCTV System	`10.30	.....do.....	SITC of CCTV System
5	EPABX system	`3.24	.....do.....	SITC of EPABX System
6	UPS	`5.11	OEM or Authorized Agency by OEM Only	

**Note:-** Above total cost of Components are tentative & indicative only for eligibility criteria of Association of Specialized Agencies and nothing for else.

**FORM – 'X'**

**WILLINGNESS CERTIFICATE FROM CONCERNED COMPETENT ELECTRICAL/SPECIALIZED**

**AGENCIES**

(Separate for each sub head of E&M work on Letter Head of Associated Agency in Original)

**Name of Work : "C/o Rural Self Employment Training Institutes (RSETIS)  
PNB at Gaya, Bihar. (SH:- Electrical work)."**

Agreement No.-

**Name of sub-work: .....**

I hereby give my willingness to work as above electrical specialized component for the abovementioned work.

I will execute the work as per specifications and conditions for the agreement and as per direction of the Engineer-in-charge. Also I will employee full time technically qualified supervisor for the works.

I will attend inspection of officers of the department as and

when required.Dated:

**Signature of Main Contractor**

**Signature of Associate  
Electrical/Specialized Contractor**

**Address:**

**and Registration detail**

**Address:**

**Telephone:**

**Telephone:**

**FAX:**

**FAX:**

**e-mail:**

**e-mail:**

## FORM – ‘Y’

### MEMORANDUM OF UNDERSTANDING [M.O.U] BETWEEN

(Separate for each sub head of E&M work and to be on Stamp Paper duly Notarized)

1] M/S [Name of the firm

with full address]

[Henceforth called the

main contractor]

And

2] M/S [Name of the firm with full address]

[Henceforth, called Associated Electrical Contractor or Electrical Contractor]

For the execution of Electrical Work: “**C/o Rural Self Employment Training Institutes (RSETIS) PNB at Gaya, Bihar. (SH:- Electrical work.).**”

Name of sub-work: .....

We state that M.O.U between us will be treated as an agreement and has legality as per Indian Contract Act [amended upto date] and the department [CPWD] can enforce all the terms and conditions of the agreement for execution of the above work. Both of us shall be responsible for the execution of work as per the agreement to the extent this MOU allows. In case of any dispute, either of us will go for mediation/arbitration by the Chief Engineer(patna), CPWD, Patna. Any of us may appeal against the edition/arbitration to the Chief Engineer (Patna), CPWD, Patna. His decision shall be final and binding on both of us.

We have agreed as under:

1. The electrical/specialized contractor will execute all electrical/specialized works in the wholesome manner as per terms and conditions of the agreement. The electrical/specialized contractor shall be paid as per standard procedure followed by the department and the agreement between parties. Any type of internal transaction between the electrical/specialized contractor and the main contractor shall be as per their convenience and mutual understanding without involving the department.
2. The electrical contractor/specialized shall be liable for disciplinary action if he failed to discharge the action[s] and other legal action as per agreement.



3. All the machinery and equipments, tools and tackles required for execution of the electrical works, as per agreement, shall be the responsibility of the electrical/specialized contractor.
4. The site staff required for the electrical work shall be arranged by the electrical/specialized contractor as per terms and conditions of the agreement.
5. Site order book maintained for the said work shall be signed by the main contractor as well as by the Engineer of the Associated Contractor and by Associated Contractor himself.
6. All the correspondence regarding execution of the electrical/specialized work shall be done by the Department with the Associated Contractor with a copy to the main contractor. Also Department can make correspondence directly with the Main Contractor. In case of non-compliance of the provisions of agreement, the main contractor, as well as the associated contractor shall be responsible. The action under clauses 2 and 3 shall be initiated and taken against the main contractor only.

• **Name of the Sub Head to be indicated :**

Signature of main contractor

Signature of associated

electrical/Specialized

contractorName :

Name :

Address :

Address :

Date:

Date :

Place:

Place:

**"FORM - Z"**

**DETAILS OF ALL WORKS OF SIMILAR CLASS COMPLETED DURING  
THE LAST SEVEN YEARS ENDING LAST DAY OF THE MONTH  
PREVIOUS TO THE ONE IN WHICH APPLICATIONS ARE INVITED.**

Sl. No	Name of Work / Project & Location	Owner or Sponsoring Organisation	Gross amount	Date of Commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation/arbitration pending/in progress with details*	Name & address/Tel ephone number of officer to whom reference may be made	Remarks
1	2	3	4	5	6	7	8	9	10

\*Indicate gross amount claimed and amount awarded by the Arbitrator.

**SIGNATURE OF APPLICANT(S)/MAIN CONTRACTOR**

Note:-

- Only those works which satisfies the eligibility criteria needs to be mentioned.

**GENERAL, COMMERCIAL AND ADDITIONAL TERMS AND CONDITIONS**

**FORELECTRICAL WORKS (SUB HEAD- 1 to 9)**

**1. GENERAL**

This work covers supplying, testing as may be necessary before dispatch, delivery at site, all preparatory work assembly and installation, commissioning putting into operation of lighting & final testing & commissioning.

**2.** Location: The work shall be carried out at [PNB, Gaya, Bihar.](#)

**3.** The work shall be executed as per CPWD General Specifications for Electrical Works part-I Internal 2023, Part-II (Ext.) 2023, Lift, Sub-Station, DG Set, Fire Fighting, Fire alarm & HVAC etc. as amended upto date, relevant I.E. Rules, BIS/IEC and as per directions of Engineer-in- Charge. These additional specifications/ conditions are to be read in conjunction with above and in case of variations; specifications given in these additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work. In case of discrepancy between the BOQ, List of Makes, Tech. Specifications, Drawings etc the following order of preference shall be observed,-

Schedule of work/BOQ

List of approved make of material

Technical Specifications

Drawings

Terms & condition for particular E&M installation

CPWD General Specifications

BIS/IEC/International Codes

- 4 The tenderer should in his own interest visit the site and get familiarized with the site conditions before tendering.
- 5 All T&P and special T&P including ladders, chain pulley, welding machine etc. required for the work shall have to be arranged by the contractor and nothing extra shall be paid on account of this.
- 6 The makes/models and Cat. No. etc mentioned in NIT are indicative only. The firms shall be responsible for providing the system fulfilling the specifications capacity and all other related requirement of system ensuring compatibility between different items of work.
- 7 The firm shall be required to supply all quantities against a particular item of same make (among the list of Preferred makes) to ensure compatibility, proper matching and ease of maintenance.
- 8 Department reserves the right to accept the upgraded version of various items, if there is technological advancement with reference to these makes/models. The decision of department in this reference shall be final and binding on the firms.
- 9 The contractor shall discuss with EE(E) or his authorized representative / visit the site before placing the supply order / delivery of materials at site as per actual requirement during appropriate stage of civil works. The contractor shall take prior approval from engineer -in- charge before procuring materials/ equipments. The actual quantity of materials

required may deviate (+/-) from the quantity taken in the schedule of work/inventory of the agreement Rates.

- 10 The rates quoted by the tenderer, shall be firm and inclusive of all taxes (including GST& labourcess), duties levied etc. and all charges for packing forwarding, insurance, freight and delivery, installation, testing, etc. at site

including temporary construction of storage, risks, overhead charges, generalliabilities/obligations.

11. The department will not issue octroi exemption certificate (if required).

**12. Completeness of tender:**

All sundry equipment, fittings, unit assemblies, accessories, hardware items, foundation bolts, minor painting, termination lugs for electrical connections, and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specially mentioned in the tender documents or not.

**13. Storage and Custody of Material:**

The agency has to make his own arrangements for storage. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department/Client.

**14. Care of the Building:**

Care shall be taken by the contractor while handling and installing the various equipment and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste material arising out of the installation from the site of work.

**15. Completion Period:**

The completion period mentioned in the tender documents is for the entire work of planning, designing, approval of drawings etc., arrangement of materials & equipments, delivery at site including transportation, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-Charge.

The Contractor shall be responsible for handing over the Inventory of entire system in operational to the Client to the satisfaction of the Engineer-in-Charge before recording of completion Certificate & making the final payment.

**16. PREFERRED MAKES OF VARIOUSEQUIPMENTS/MATERIALS:**

The preferred makes of various equipments / components / accessories have been indicated in item itself. The tenderer shall work out the cost of the offer on this basis. Makes of the items which are not covered in the list of preferred makes shall be got approved from the Engineer- in-Charge and shall conform to relevant Indian Standard as applicable.

**17. EXTENT OFWORK**

The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department. The term complete installation shall not only mean major items of the plant and equipments covered

by specifications but also all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been mentioned in details in the tender document in connection with this contract.

- 18 All debris/Malba resulting due to work shall be removed on daily basis and completion of the work shall only be accepted after the site has been cleaned of from all malba. In case contractor fails to comply, the same shall be got removed by the other agency at the cost of the contractor payment which shall be recovered from the bill of the contractor.
- 19 Contractor shall be bound to execute such additional items which can be termed as logical, essential and necessary (even though not listed in schedule of work) for the effective execution of the work in totality; rates for such items of work shall be rationally analyzed /derived and would be binding on the contractor.

## 20. INSPECTION OF MATERIALS AND EQUIPMENTS:

Adequate care to ensure that only tested and genuine materials of proper quality are used in work shall be ensured by firm. The firm shall ensure that:

21. Material will be ordered & delivered at site only with the prior approval of the Engineer-In- Charge to ensure timely delivery.

As and when the order is placed for the material, its copy shall be endorsed to the CPWD Engineer-in-Charge.

The firm will be required to procure material directly from the manufacturer/authorized dealers to ensure genuineness & quality and as per the preferred makes only. Proof in this regard shall be submitted by the contractor if required by the department.

The contractor shall provide all necessary facilities for inspection of equipment (as decided by Engineer-In-charge). The contractor shall also furnish the routine/type test certificates for the materials /equipment /accessories to be used in this work to the satisfaction of Engineer-in- charge. Also the contractor submit routine/type test certificates for equipments (for which inspection will not be done by the department),as desired by the Engineer-in-charge.).

## 22. COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS:

All works shall be carried out in accordance with relevant regulation both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following acts & rules:

Factories Act. 22.3Indian Electricity Rules.

- 22.4B.I.S. & other standards as applicable.22.5Workmen's compensation Act.
- 22.6 Statutory norms prescribed by local bodies like CEA, Power Supply Co., Fire Department etc. asper applicability.
- 26.7 All components shall conform to relevant Indian standard specifications wherever existing. Materials with ISI certification mark shall be preferred.
- 27 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.

28. Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirements would make the tenderer liable for penalty of Rs.5000/- for each default. In addition, the department will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

**29 INDEMNITY:**

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising thereof during the period of erection, construction and putting into operation the equipments and ancillary equipments under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

**30 ERECTION TOOLS:**

No tools and tackles either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

**31. INSURANCE AND STORAGE:**

All consignments are to be duly insured upto the destination from warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over, duly installed, tested and commissioned.

**32. MAINTENANCE:**

Sufficient trained and experienced staff & Engineer shall be made available to meet any exigency of work during the guarantee/defect liability period of **One year** from the date of Completion/handing over of the installation, which ever later.

Testing and commissioning of complete installation as per CPWD specifications and to the satisfaction of the Engineer in charge.

All tools and tackles required for handling of equipments and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the Contractor.

Watch and ward of the materials shall be the responsibility of the contractor till their handing over to the department on completion of the work.

All materials shall be supplied and used in items of works by the Contractor should be of standard and approved quality. They should be got approved from the Engineer-in-Charge before installation otherwise no payment will be made for an unapproved material used on the work and will be removed at their risk & cost.

Extreme care and precautions are to be taken while carrying out the work. In case of any incident due to negligence of the staff/ technician, the contractor shall be held responsible and liable to pay all the expenses and compensation.



The whole installation complete in working condition shall be handed over to the department

After successful completion of work. Any damage done to the equipment partially or wholly shall be set right by the contractor. Nothing extra shall be payable on account of this.

The firm should submit the name of the persons or workers to be deployed at site for the execution of the work, to the department before deploying at site.

The agency/ firm is required to submit documentary evidence such as bills/invoice for purchase of material from authorized dealer/manufacturer of the material for ascertaining genuineness of material if required by the department. The contractor shall submit copies of bills/invoice of purchase of all equipments (as decided by Engineer-in-charge).

The contractor shall submit, along with application for approval of makes/ sample of materials & technical specification of items, an undertaking from the OEM of Public Address System, , CCTV system, UPS, Electrical Panel etc.:-

Contractor should place the purchase order of major item/ specialized after getting the permission of Engineer-In-charge as per actual progress of the civil work.

All equipments i/c fittings/fixtures/fans/ switchgears/circuit breakers/Public address system equipments, UPS, Smart Class, Fire fighting system, CCTV system, EPABX system etc.(excluding LED fittings) shall have guarantee/ warranty for period of 12 months from the date of completion & taking over the installations by the department, whichever later, against unsatisfactory performance and/or break down. The equipments or components, or any parts thereof, so found defective during guarantee period shall be forth with repaired or replaced free of cost to the satisfaction of the Engineer-in-charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this the same will got be done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final.

Malba/rubbish generated during execution of work will be removed on same day or next day positively failing which department will remove all malba's from the site. Recovery @Rs.1000/-per day will be made from the contractor's bill.

### 33. **Documentations**

After testing and commissioning of all equipments / installations, the contractor shall submit following documents , which are within the scope of work & nothing extra will be paid on account of these.

Completion drawings/ Completion plans prepared in computer (both soft & hard copies) Commissioning reports showing technical data's as decided by Engineer-in-charge in consultation with the consultant appointed by the department for those system. Technical Catalogue's of equipments (as decided by Engineer-in-charge). Any other documents as required by E-in-C.

## **ADDITIONAL TERMS AND CONDITONS FOR EI & OTHERS(FOR SUB HEAD- 1 to 9)**

1. The work shall be carried out as per CPWD General Specification for Electrical works Part-I Internal, Part-II External, Part-IV Sub Station and IE Rules as amended upto date and to the satisfaction of Engineer in-charge.
2. **WORKS TO BE DONE BY THE CONTRACTOR**  
The following works shall be done by the Contractor and nothing extra shall be paid on this account.  
Cutting and making good all the damages caused during installation and restoring the same to their original finish.  
Sealing of all floor openings provided by him for pipes and cable, from fire safety point of view after laying of the same.  
Painting at site of all exposed metal surfaces of the installation i/c Conduits other than pre-painted items like fittings, fans, switchgear/ distribution gear items, cubicle switch board etc. and damage during erection (if any) shall however be rectified to the satisfaction of the Engineer-in-Charge.
3. **Guarantee of fixtures for LED fittings:-**  
  
All LED fittings/fixtures(Except LED Batten) shall be guaranteed for a period of 5Years.  
50% of the Performance Guarantee of LED fittings/fixtures (to be calculated @ 5% of payment to be made for LED fittings/fixtures of execution i/c in extra items) shall be refunded to the contractor soon after the completion of the work and recording of the completion certificate.  
50% of the above Performance Guarantee shall be retained as Security Deposit.  
50% of above Performance Guarantee retained as Security Deposit plus 2.5% Security Deposit already deducted from running bills (total 2.5 +2.5 = 5% of payment to be made for LED fittings/fixtures shall be refunded year wise proportionately.
4. **Guarantee of other equipments i/c LED batten except above LED Fittings:**  
  
All equipments shall be guaranteed for period of 12 months from the date of completion or taking over the installations by the department , which ever later , against unsatisfactory performance and/or break down. The equipments or components, or any parts thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost to the satisfaction of the Engineer-in-charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this the same will got be done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final.
5. The contractor shall submit LM -79 & LM -80 reports and other reports regarding technical specifications of LED lights, issued by the competent authority of LED manufacturer, for

- each and every type of LED fittings, along with sample fitting for taking approval from the Engineer-in-Charge.
6. The agency shall submit drawings and details such as makes and models of the equipment /materials( pump sets, cubical panels, pipes, valves, switchgears and other materials in the contract) offered by him along with specifications for all E&M component i/c curve and discharge head of pump sets to the Engineer-in-charge of the work, before ordering the equipment / materials for getting approval from the Engineer-in-charge.

### 7. SWITCH BOARDS / MV PANELS / LT PANELS

- a) The MV switch boards/LT Panels shall be Type Tested at CPRI as per the standards, for which the agency shall submit CPRI test certificate. The switchboards and the associated equipment including switchgear, control gear, Bus bar supports, Bus bar orientation, Bus bar links etc shall be identical in construction to the assembly.
- b) Switchboards shall have a short circuit level withstand as per Schedule of Quantities and drawings.
- c) The enclosures shall be designed to take care of normal stress as well as abnormal electro- mechanical stress due to short circuit conditions. All covers and doors provided shall offer adequate safety to operating persons and provide ingress protection of IP 42 (indoor)/ IP 54 (outdoor) unless otherwise stated. Ventilating openings and vent outlets, if provided, shall be arranged such that same ingress protection of IP 42 is retained.
- d) The switchboard along with MCCBs and connections should have been be type tested design at CPRI /Independent international test house for short circuit, temperature rise, protective earth short circuit test and dielectric tests of the ratings required.
- e) For operator safety IP2X protection to be available even after opening the feedercompartment door.Thecompartmentalizationto beachievedbyusingmetalseparators,useofPVC sheet.
- f) Switch board Configuration
- g) The Switchboard shall be configured with MCCB's, MCB's and other equipment ascalled for in the schedule of quantities.
- h) The MCCBs shall be arranged in multi-tier formation.
- i) The Switchboards shall be of adequate size with a provision of spare space toaccommodate possible future additional switchgear.

### 3. **Constructional Features**

- a) The Switchboards shall be metal clad totally enclosed, floor mounted free standing/Wall Mounted type of Bolted, suitable for indoor mounting.
- b) Switchboards construction shall employ the principle of compartmentalized and segregation for each circuit.

- c) Incomer sections shall be separate and independent and shall not be wired with sections required for feeder.
- d) Switchboards shall be made up of requisite vertical sections, which when coupled together, shall form continuous dead fronts witch boards.
- e) The switchboards shall be designed for use in high ambient temperature and humid tropical conditions as specified. Ease of inspections, cleaning and repairs while maintaining continuity of operation shall be provided in the design.
- f) Metal based neoprene gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust and vermin proof to provide a degree of protection of IP 42(For indoor)/IP 54 (For outdoor) as stipulated in schedule of quantities . The unused openings within the switchboards shall be closed using suitable grommets.
- g) Special care to be taken to ensure effective earthing of the frame and doors of theswitch boards.
- h) Each vertical section shall be provided with a rear or side cable chamber housing the cable end connections and power/control cable terminations. There should be generous availability of space for ease of installation and maintenance with adequate safety for working in one vertical section without coming into contract with any live parts. The design of the switchboard shall allow standard extension chambers if required to accommodate cables.
- i) Some switchboards may be required to be installed against the wall (if necessary) for such application-documented designs shall be available.
- j) Switchboard panels and cubicles shall be fabricated with CRCA Sheet Steel of thickness not less than 2.0 mm and shall be folded and braced as necessary to provide a rigid support for all components. The doors and covers shall be fabricated from CRCA sheet steel of thickness not less than 2.0 mm. Removable Gland Plate shall be3mm.
- k) Switchboard shall be provided with "Danger Notice Plate" conforming to relevant Indian Standards.

#### 4. Switchboard Dimension all imitations

- a) The overall height of the switchboard shall be limited to 2400 mm for all the Busbar ratings and type of switchboards. Panel should have integral base frame of 75mm, hence total panel height should not be more than2475mm.
- b) The height of the operating handle, push buttons etc shall be restricted between 300 mm and 2000 mm from finished floor level.
- c) Other dimensional limits if any are specified separately.

## 5. Switchboard Compartmentalization

- a) For compartmentalized switchboards, separate totally enclosed compartments shall be provided for horizontal bus bars, vertical bus bars, ACBs, MCCBs, and cable alloys.
- b) The main board shall be with Form 3b Construction.
- c) Sheet steel hinged lockable doors for each separate compartment shall be provided and duly interlocked with the breaker in "ON" and "OFF" position.
- d) Each switchgear cubicles shall be fitted with label in front and back identifying the circuit, switchgear type, rating and duty. All operating device shall belocated in front of switchgear only.
- e) Separate cable compartments running the height of the switchboard in the caseof front access boards shall be provided for incoming and outgoing cables.
- f) Cable compartments shall be of adequate size for easy termination of all incoming and outgoing cables entering from bottom or top. The construction shall include necessary and adequate and proper support shall be provided in cable compartments to support and clamping the cable in the cable alley / cable chamber.

## 6. Switchboard Bus Bars

- a) Bus bars shall be made of high conductivity, high strength Aluminium, Bus barsshall be of rectangular cross sections suitable for full load current for phase bus bars and half rated current for neutral bus bar or as stipulated in schedule of quantities. Bus bar shall be suitable to withstand the stresses of fault level as specified in schedule of quantities.
- b) The bus bar system may comprise of a system of main horizontal bus bars and auxiliary vertical bus bars run in bus bar alloy on either side in which the circuit could be arranged with front access for cable entrances
- c) The bus bars shall be supported on non-breakable, non-hygroscopic epoxy resin or glass fiber reinforced polymer insulated supports able to withstand operating temperature of 110 deg C at regular intervals, to withstand the forces arising froma fault level as stipulated in schedule of quantities. The material and the spacing of the Bus bar supports should be same as per the Fault level.

## 7. Switchboard Interconnection

- a) All connection and tap offs shall be through adequately sized connectors appropriate for fault level at location. This shall include tap off to feeders and instrument/control transformers.

- b) For unit ratings up to 63 amps, PVC insulated 105 deg.C withstand, copper conductor wires of adequate size to carry full load current shall be used. The terminations of such interconnections shall be crimped. Solid connections shall be used for all rating of above 63 amps.

## 8. Wiring

All wiring for relays and meters shall be with FRLS PVC insulated copper conductor wires. The wiring shall be coded and labeled with approved ferrules for identification. The minimum size of copper conductor control wires shall be 2.5 sq. mm. Runs of wires shall be neatly bunched and suitably supported and clamped. Means shall be provided for easy identification of wires. Identification ferrules shall be used at both end of wires. All control wires meant for external connections are to be brought out on a terminal board. The cables and control wires shall be suitable for withstanding 105 deg.C.

## 9. Sheet Steel Treatment And Painting

Sheet steel used in the fabrication of switchboards shall undergo a rigorous cleaning and surface treatment seven tank process comprising of alkaline degreasing, descaling in dilute

sulphuric acid and a recognized phosphating process after which a coat of primer paint compactively with the final paint shall be applied over the treated surface. Final paint coat of oven baked powder coating, of minimum 50-60 micron thickness, of sheet approved by Engineer-in-Charge shall then be provided.

## 10. Name Plates And Labels

Suitable engraved white on black name plates and identification labels of metal for all Switchboards and Circuits shall be provided. These shall indicate the feeder number and feeder designation.

## 11. Testing at manufacturers works of MV panel

Copies of type test carried out at manufacturers works and routine tests carried out at the switchboard fabricators shop shall be furnished along with the delivery of the switchboards. Engineer-in-Charge reserves the right to get the switchboard inspected by their representative at fabricators works prior to dispatch to site to witness the followings.

- Physical variation and dimensional check
- Verification of bill of material
- Functional check
- HV test
- IR test(Megger)

26. The agency shall get Design from the manufacturer and installation Work of Stadium Mast and Flood Lights in the direct supervision, guidance of Manufacturers. Also Aiming, beaming, direction, Lux Leveling, Testing, Commissioning of LED Flood Lights etc. to be done directly by the Manufacturer. These will be within the scope of the work and nothing extra shall be paid on this account.

27. The agency shall get the design and drawing of Stadium Mast and



Foundation of Stadium Mast prepared from the Manufacturer's of Stadium Mast for the windvelocity mentioned in the BOQ& as per soil test report of civil works(major Component) and get it vetted from any NIT or IIT within the scope of the work and nothing extra shall be paid on this account. Then the agency shall submit the vetted drawing to the department and after getting approval from the department, the stadium mast shall be manufactured.

**28.** The department shall reserve the rights to inspect the Stadium Mast and/or LED Flood Lights at Manufacturer's Works within the scope of the work. The agency shall make all arrangement for inspection of the same and give prior notice to the department for the inspection after ready of Mast and Flood Lights.

**29.** Also Department shall reserve rights to get tested of LED Flood Lights from any Third party Testing Laboratory. However the expenditure of these testing shall be Bourne by the department. But if above materials failed in the testing, then the above testing cost shall be deducted from the bill of the agency.

**30.** The following percentage of contract rates for pump sets and MV Panels/LT Panels/ Stadium Mast/ LED lights/ LED Flood Lights etc. in the contract shallbe payable against the stage of work shown herein;

70% after delivery at site in good condition on pro rata basis.

20% after completion of installation in all respects.

10% will be paid after testing, commissioning & handing over to the department beneficial use.

## 1. GENERAL TECHNICAL SPECIFICATIONS OF LED LIGHTS

S. No	Parameters	Technical specifications
1	LED chip make	Cree /Nichia/ Osram / Lumiled/Philips/Seoul
2	Ingress Protection	IP20 (for indoor light fixtures) IP66 (for outdoor light fixtures)
3	CRI (Typical)	>80 for indoor light fixtures& CRI >70 for outdoor light fixtures
4	Harmonicas/THD	<20% for LED tubes, dimmable drivers in downlighters,bollards&<10% for all LED fittings
5	Power Factor	Minimum 0.90 at full load/230 Vac
6	Input Voltage	Operating Voltage – 140-270 VAC
7	Rated Voltage	220V-240V
8	Surge Voltage	Up-to 2.5 kV L, N for Indoor Lighting Up-to 10 kV L, N for Outdoor

		Lighting
9	Input(operating)Frequency	50 Hz +/- 3%
10	Working Temp	0 to +45 deg C
11	Working Humidity	10% - 90% RH
12	Luminaries Efficacy	For Indoor Lighting :- more than equal to 100 Lm/w For patient bed light :- more than equal to 80 Lm/w For Outdoor Lighting:- (a)more than equal to 100 Lm/w ( Post top Light) (b)more than equal to 80 Lm/w ( Bollard Light) (c)more than equal to 120 Lm/w(Flood Light Fitting ) (d)more than equal to 120 Lm/w(Other than above )
13	Driver	BIS certified , Efficiency:-85% , , Isolated Type with inbuilt protection against short circuit, over voltage protection, surge protection (for Indoor) , Potted Type (for Outdoor), Multistage Constant Current Constant Voltage topology driver suitable to operate in input voltage range of 150V to 270V (nominal rated voltage – 240V)
14	Colour Temperature	3000/4500/6000K (as per site requirement & decision of the Engineer-in-Charge )
15	LED Lifespan & Luminaire Photometric data	LM79 and LM80 (Test report from NABL accredited lab should be submitted by the contractor).
16	LEDs	LEDs used must be tested as per EN62471 for Photo biological Safety of humans and Report of the same from LED Manufacturer shall be submitted.
17	Standard Warranty	5 years for all fitting ( Indoor & Out Door)
18	LED Life	50000 Burning Hours @ L-70

**Note :- The above technical specifications shall supersede the technical specification of the particular model of any make as mentioned in list of Approved make.**

**ADDITIONAL TERMS & CONDITIONS FOR FIRE FIGHTING**  
**(FOR SUB HEAD – 10 )**

**1. Terms of payments**

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

70% after initial inspection and delivery at site in good condition on pro-rata basis.

20% after completion of installation in all respects.

Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use.

**Drawings for approval on award of the work**

The contractor shall prepare and submit following drawings and get them approved from the Engineer-in-charge before start of the work. The approval of drawings however does not absolve the contractor of his responsibility to supply the equipments/ materials as per the agreement. In case of any contradiction between the approved drawings and agreement the decision of the Engineer-in-Charge shall be final and binding on the contractor.

Layout drawings of the equipments to be installed in pump room and terrace.

Drawings showing the details of erection of entire equipments including their foundations.

Plumbing drawings showing the layout of entire piping, dia and length of pipes, hydrant, air vessel, valves and isometric drawings showing connections to various equipment.

Electrical wiring diagrams for all electrical equipments and controls including the sizes and capacities of the various cables and equipments,

Drawings of all electrical and control panels with dimensions.

Drawings showing details of supports for pipes, cable tray setc.

Any other drawings relevant to the work.

**Completion Drawing**

Three sets of the following laminated drawings shall be submitted by the contractor while handing over the installation to the Department. Out of this one of the sets shall be laminated on a hard base for display in the fire control room. In addition one set will be given on compact disc.

Installation drawings giving complete details of all the equipments, including their foundations.

Plumbing layout drawings giving sizes and lengths of all the pipes and the sizes and locations of all types of valves, and including isometric drawings for the entire piping including the pipe connections to the various equipments.

Line diagram and layout of all electrical control panels giving switchgear ratings and their disposition, cable feeder sizes and their layout.

Control wiring drawings with all control components and sequence of

operations to explain the operation of control circuits.

#### **DOCUMENTS TO BE FURNISHED ON COMPLETION OF INSTALLATION**

Three sets of the following documents shall be furnished to the department by the contractor on completion of work:

Completion drawings.

3 sets of manufacturer's technical catalogues of all equipments and accessories.

Operation and maintenance manual of all major equipments, detailing all adjustments, operation and maintenance procedure all in triplicate.

- 5.0 After completion of the installation the same shall be offered for inspection by the representatives of the Fire Department through Client ( If applicable). The contractor will extend all help including test facilities to the representatives of Fire Department. The observations of Department will be attended by the contractor within the scope of the work.
- 6.0 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.
- 7.0 Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirements would make the tenderer liable for penalty of Rs.5000/- for each default. In addition, the department will be at liberty to make arrangement for safety requirements at the cost of tenderer and recover the cost thereof from him.

#### **Technical Specifications For Fire Fighting**

1. The operating pressure of individual hydrant shall be 3.5 kg/sq cm. At terrace level hydrant, minimum 3.5 kg/sq cm pressure shall be maintained.
2. The pipe line will be designed in such a way that it should be possible to get discharge at any location. Design parameters shall be as under :(i) Maximum flow velocity 2.5 mps. (ii) Maximum Friction 5 m.per 100 m.run
3. Fire Service inlet:- 'In order to facilitate feeding of water in the system by fire service, a 3 way 63 mmdia collecting head shall be provided and connected with each riser/down comer with non return valve and butterfly valve. This should be located at a place where fire brigade vehicle can reach.
4. Air Vessel: - To counteract the water hammer effect, air vessels shall be provided one at top of each riser.
5. Orifice Plate: - To reduce pressure on individual hydrant to operating pressure of 3.5kg/sq.cm, orifice plate shall be provided before connection of hydrant.
6. All down comer pipes shall be inter connected at the terrace level. In case terraces are not interconnected, all building will be treated as individual buildings.
7. Fire service inlet shall be provided with each riser for facilitating pumping of water from fire service tenders.
8. Plumbing drawings showing the sizes of pipe, valves, layout and other details shall be prepared and shall be got approved from the Engineer-in-Charge before the execution of the plumbing

work.

9. Electric welding joints shall be provided in the M.S. pipe work. Flanged joints shall be provided for connections to valves, pumps, air vessels etc. and also on straight lengths at suitable points to facilitate erection and subsequent maintenance.
10. The flanges shall be smooth faced and neoprene gasket shall be provided. Where un-avoidable and to connect underground pipe with risers, M.S. pipe may be used in the form of distant pieces. The joint between C.I. and M.S. pipe shall be flanged type. M.S. pipe laid at such locations shall be provided anti-corrosive treatment as per Para 7.12.
11. Mild steel flanges shall be in accordance with Table - 17 of IS : 6392 i.e. "Plate Flanges for Welding" and flange thickness shall be as under. Gasket thickness shall not be less than 3 mm.  
Pipe dia  
Flange Thickness
 

i. 200mm.	24mm.
ii. 150 mm and 125mm.	22mm.
iii. 100 mm and 80mm.	20mm.
iv. 65mm.	18mm.
v. 40 mm and below.	16mm.
vi. All hardware items such as Nuts, Bolts, Washers shall be of appropriate size. Washers shall be used on both sides of the bolt.	
12. Air release valves shall be of gunmetal body.
13. Stainless steel strainers shall have minimum 1.6 mm thick screen with 3 mm perforations. Strainers shall be provided with flanges.
14. Orifice plate shall be made of 6 mm. thick stainless steel and shall have an identification tag projecting beyond any flange between which it is clamped. The orifice shall be plain central hole without burs and diameter not less than one-half of the internal diameter of the pipe to which it is fitted.
15. Air vessel shall be provided on top of each riser and shall be fabricated out of 8 mm. thick M.S. Sheet. The ends shall be dished. This shall be of 250 mm.dia, 1.2 m. high and installed vertically on suitable legs. The legs shall be provided with M.S. Plate of size 75 mm x 75 mm x 5mm at the bottom so that the legs do not puncture the roof. The legs shall be grouted in CC foundation. Flange connection shall be provided for connection with riser pipe. Air release valve and pressure gauge with shut off valve shall be provided. The air vessel shall be tested at 25 kg/sq.cm pressure before installation.
16. The installation work shall be carried out in accordance with the detailed drawings prepared by the contractor and approved by the Engineer-in-charge.
17. In pipe above ground level, expansion loops or joints shall be provided to take care of expansion or contraction of pipes due to temperature changes.
18. Tee-off connections shall be through equal or reducing tees, otherwise ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.
19. Open ends of piping shall be blocked as soon as the pipe is installed to avoid entrance of foreign matter.
20. Piping installation shall be, supported on or suspended from structure adequately. The contractor shall provide, clamps, hangers etc. Proper lines and levels shall be maintained while installing exposed pipes.
21. Extra supports shall be provided at the bends and at heavy fittings like valves to avoid undue stress on the pipes.
22. Anti vibration pads, springs or liners of resilient and non-deteriorating material shall be provided at each support, so a stop revent transmission of vibration through the supports.
23. Pipe sleeves of diameter larger than the pipe by least 50 mm shall be provided wherever pipes pass through walls and the annular spaces shall be filled with felt and finished with retaining rings.
24. Vertical risers shall be parallel to walls and column lines and shall be straight and in plumb.
25. Risers passing from floor to floor shall be supported at each floor by clamps
26. The space in the floor cut outs around the pipe work shall be closed using cement concrete (1:2:4)



- mix) or steel sheet, from the fire safety considerations, taking care to see that a small annular space is left around the pipes to prevent transmission of vibration to the structure.
27. Riser shall have suitable supports at the lowest point.
  28. Underground pipe shall be laid at least 2 m. away from the face of the building preferably along the roads and foot paths. As far as possible laying of pipes under road, pavement and large open spaces shall be avoided. Pipes shall not be laid under building and where unavoidable, these shall be laid in masonry trenches with removable covers.
  29. Pipe over ground shall be painted in red colour.
  30. It shall be made sure that proper noiseless circulation is achieved in the system. If proper circulation is not achieved due to air-bound connections, the contractor shall rectify the defective connections. He shall bear all the expenses for carrying out the above rectification, including the tearing up and refinishing of floors, walls, etc. as required.
  31. All piping shall be tested to hydrostatic test pressure of at least one and a half times the maximum operating pressure, but not less than 10 kg./sq.cm. for a period not less than 24 hours. All leaks and defects in joints revealed during the testing shall be rectified to the satisfaction of the Engineer-in- Charge.
  32. Piping repaired subsequent to the above pressure test shall be re-tested in the same manner.
  33. System may be tested in sections and such sections shall be securely capped.
  34. Pressure gauges may be capped off during pressure testing of the installation.
  35. The rates for piping work shall include all wastage allowances, flanges, pipe supports, hangers, excavation, refilling, testing, nuts and check nuts, vibration isolators, suspension where specified or required, and any other item required to complete the piping installation. None of these items will be separately measured and paid.
  36. The landing valve shall be fitted to a T connection of the riser at the landing in such a way that the valve is in the centre of the internal hydrant opening and at a height of 1 m. from floor level. The valve base shall be vertical and the valve facing out side. There should be no hindrance in operation of the handle.
  37. First Aid Hose Reel is meant for delivering small quantity of water in early stage of fire and can be operated even by untrained personnel, and thus provides a most effective fire fighting facility. It consists of a length of 20 mm (nominal internal) diameter hose. tubing warped around a reel with water inlet pipe, stop valve and shut off nozzle. The entire assembly is mounted on a wall bracket and can swing 180 degree. The water inlet is connected to the riser pipe by means of 37 mm socket and valve. The hose tube can be pulled out easily for the purpose of discharge of water on fire.
  38. There shall be no obstruction in swinging the hose reel and should be installed above landing valve where provided.
  39. Hose reel bracket should be firmly grouted on the wall with the help of rawl bolts.
  40. All pressure gauges should be installed so that the dial is vertical and is visible while entering the pump house.
  41. In no case any structural member i.e. RCC wall, column, beam and floor are to be damaged during installation. Mechanical fasteners are to be used for grouting support. U.G. tank wall is not to be used for any support.
  42. Pressure testing is to be carried out in sections before filling the earth back in the trench.
  43. Fire service connection inlet shall be located parallel to the nearby road foot path so as to give proper appearance. Foundation shall be raised from below ground level and shall be properly plastered in plumb. The hydrants shall be facing the road approach. There shall be no obstruction in approaching the hydrants for operation.
  44. After completion of the work, 'all valves/ fittings shall be installed in position and entire system shall be tested for 24 hours at a pressure of 10 kg/ sq cm. The drop of pressure up to 0.5 kg/sq cm shall be accepted.
  45. After completion, all operation checks shall be carried out for automatic operation of the systems. For this purpose, landing valves may be opened at different locations. The exercise shall be repeated couple of times to ensure trouble free operation of the system.
  46. After completion of the work and testing to the entire satisfaction of Engineer-in Charge, the installation shall be offered for inspection to the Fire Department or his representative. Testing as desired by the Fire Officer shall be carried out. The contractor will extend all help including



- manpower during testing. The observation of Fire Department which are a part of agreement shall be attended by the contractor. Nothing extra is to be paid for testing as above.
47. Before commissioning, the entire system shall be flushed to ensure that any earth/ foreign matters which might have entered during installation are taken out. For this, pump may be operated and valves opened at different locations.
  48. As soon as the work is complete, the system shall be commissioned and made available for use. Requirement of fire fighting installations is equally important during occupation of the building. If the building is to be occupied in part, fire fighting system of building completed shall be commissioned by isolating the system of under construction portion of the building.
  49. Any defects noticed during the warranty period shall be promptly attended by the contractor and availability of the system at all time is to be ensured.

**ADDITIONAL TERMS & CONDITIONS FOR SMART CLASS ROOM**

**(FOR SUB HEAD- 11)**

1. The work shall be carried out as per CPWD general specifications of electrical works amended upto date and as per direction of Engineer – in – Charge.
2. The material to be used at site shall have to be got approved by Engineer in charge before use at site.
3. Any damage done to the building/equipment shall be made good by the contractor at his risk & cost.
4. The contractor shall submit sample materials along with technical specifications/Test Reports (If any) to the department for getting approval, before procurement of materials. All the materials to be used on the work by the contractor shall be got approved from the Engineer-in-charge or his authorized representative before use on the work. The rejected materials shall have to be replaced by the contractor at his own cost and the same should be removed from the site immediately.
5. All T&P and special T&P shall be arranged by the contractor & nothing extra shall be paid on account of this.
6. Works with bad workmanship are liable to be rejected and the same shall be rectified by the contractor for which nothing extra shall be paid.
7. Only ISI marked wires/ cables (If ISI mark is applicable to that item). etc shall be used . These shall be got approved from the Engineer-in charge before use at work.
8. The contractor is bound to sign the site order book as and when required by the Engineer-in-charge and shall carry out the instructions recorded therein.
9. Any damage done to the existing building while executing the electric work should be made good to the satisfaction of the department within scope of the work for which nothing extra shall be paid. The chases, holes etc. cut in the walls and roofs should be filled within two days. All malba should be removed on the same day by using gunny bag/mats for collection of malba. All the above shall be done under the scope of work and nothing extra shall be paid on a/c of this. In case of failure to do so it will be got done by the Engineer-in-charge or his authorized representative at contractor's risk and cost.
10. All the hidden works shall be carried out in the presence of Engineer-in-charge or his authorized representative with giving sufficient prior information.
11. The contractor shall make his own arrangements for storing the materials and watch & ward at his own cost, even for the installation till the completion of the work and handing over of the installations.
12. The contractor shall make his own arrangement for all general and special tools and plants required for the work at his own cost and nothing extra shall be paid on this account.
13. Laying of the cable routes etc. should be got approved by the Engineer-in charge or his authorized representative before execution of work. It will be in the interest of the contractor to mark the above layout at site and get it approved before actual

execution of the work otherwise it will have to get it redone which no extra payment will be made.

14. The site shall be cleared properly after completion of work.
15. If any accident occurs during the execution of work, the firm/contractor will be responsible for all and no compensation will be paid by the Deptt.
16. The firm shall submit the Manufacturer test certificate of the equipments at the time of supply of material before installation at site.
17. The contractor shall purchase materials from Authorized dealer/Manufacture of make of material.

The contractor is required to submit documentary evidences such as delivery challan/test report of material/bill/invoice/ for purchase of material used in work from Authorized dealer/Manufacture of make of material mentioned in NIT if required by the department for genuines of material.

18. The agency shall give minimum **One Year Warranty** as per manufacturer's norms, which ever higher, to **all** equipments of the system w.e.f. the date of actual completion of the work against unsatisfactory performance and/or break down for which the agency shall submit an undertaking to the Department just after completion of work. The equipments or components, or any part thereof, so found defective during warranty period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done/ rectified by the Department at the risk and cost of the contractor and the amount shall be deducted from his security deposit/ any due from the Department. The decision of the Engineer-in- charge in this regard shall be final & binding on the contractor.

#### 19. Warranty

- a) All equipments of the **Smart Class Room** shall be warranty for a period of One Year

#### 20. Terms of payments

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

70% after initial inspection and delivery at site in good condition on pro-rata basis.

20% after completion of installation in all respects.

Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use.

## **ADDITIONAL TERMS & CONDITIONS FOR CCTV System**

### **(FOR SUB HEAD- 12)**

2. The work shall be carried out as per CPWD general specifications of electrical works amended upto date and as per direction of Engineer – in –Charge.
3. All T&P shall be arrange by the contractor & nothing extra shall be paid on this account.
4. The material to be used at site shall have to be got approved by Engineer in charge before use at site.
5. Any damage done to the building/equipment shall be made good by the contractor at his own risk & cost.
6. CCTV System to be monitored from central control room or at any specified area.
7. All the CCTV Equipments like Cameras, vandal dome housings, Software and Network Video Recorder should be of same approved make to have better compatibility and should be UL/EN Listed. The firm must submit a letter from equipment manufacturer that the model of CCTV equipments quoted by them is in continuous process of manufacturing, during getting approval of make/model from the E-in-C and before procurement of equipments.
8. Item must be complete with all equipments and required accessories along with necessary power systems, vide connector, plugs, sockets and hardware/software as required for complete installation of the system under this contract and within the scope of work.
9. The firm should go through the drawings before quoting their rates so as to satisfy themselves with all layout, cable routes etc.
10. The lowest tenderer shall submit along with the technical Specifications during approval of makes ,an undertaking from the OEM of CCTV Camera & video recorder regarding:-
  - a) Authorization certificate.
  - b) The OEM is unconditionally support the lowest tenderer technically throughout the execution of contract as well as for Maintenance/ Comprehensive Maintenance Contract for the useful life of the system, and
  - c) OEM shall provide all the spares required for healthy functioning of the equipment for at least seven years from the date of supply of equipment."
11. Quoted rate inclusive of Supply, Installation, Testing and commissioning of IP CCTV live viewing and recording Software for 75 cameras +/- deviation in quantity during execution of work, with 5 user Client License (if applicable) and archive player license (if applicable) complete as required.
12. Guarantee
  - 15.1 All the CCTV Camera & Server System shall be guaranteed for a period of 1 Years from the date of Completion or date of handing over of the installation , which ever later. During Guarantee period , if the complaints or fault will not be attended within 2 days , the same will be set right by the department at the risk and cost of the agency and this cost will be deducted from the security deposit of the contractor.
13. Terms of payments
  - a. The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

- b. 70% after initial inspection and delivery at site in good condition on pro-rata basis.
- c. 20% after completion of installation in all respects.
- d. Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use.

**ADDITIONAL & GENERAL TERMS AND CONDITIONS FOR EPABX SYSTEM**  
**(FOR SUB HEAD -14)**

- 1 The work shall be carried out strictly in accordance with the CPWD General Specifications for electrical works, Part-I internal 2023 and Part-II External, 2023 as amended upto date. All installations shall also comply with the requirements of Indian Electricity Rules, 1956 amended upto date. In case of items not covered by the above specifications the work shall be carried out as per the instructions of the Engineer-in-charge.
- 2 All components shall conform to relevant Indian Standard specification. Wherever existing these materials with ISI certification mark shall be used, unless specified otherwise in the Tender schedule.
- 3 All the materials to be used in the work shall be got approved by the Engineer-in-charge before procurement.
- 4 Bad workmanship shall be rejected in toto.
- 5 All the debris due to the electrical work shall be cleared every now and then, site shall be not clean by the contractor at all times.
- 6 The contractor or his authorized representative will have to sign the site order book and comply with the remarks therein.
- 7 The contractor has to make his own arrangements for the watch and ward of the materials and other installations till the installation work is completely handed over to the department. No extra claim will be entertained on account of this. Any damage caused to the materials during or under storage will be to the contractors account.
- 8 The contractor shall make his own arrangement for all general and special T&P required for the work and no T&P shall be supplied by the department.
- 9 Samples of materials to be used on the work shall be got approved by the Engineer-in-charge before actual used. If any materials are rejected they shall be removed from the site forthwith.
- 10 Scope of work covers supply, unloading ,Storing , installation, testing and commissioning of the system as per the technical specification & technical data sheet, installation cost shall include testing & commissioning also.
- 11 Before procurement Vendor to submit dimensional GA drawing of EPABX system and obtain approval of engineer-in-charge.
- 12 EPABX System shall be procured directly from the approved OEMs and proof of purchase submitted along with Warrantee certificate and test certificates from OEM.
- 13 Testing and commissioning of the EPABX system also shall be done in presence of the Engineer from EPABX manufacturer and the system certified from OEM for satisfactory installation & Commissioning.

**14 Terms of payments**

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

- 14.1 70% after initial inspection and delivery at site in good condition on pro-rata basis.
- 14.2 20% after completion of installation in all respects.
- 14.3 Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use.

**15 Guarantee /Warranty**



15.1

A

II EPABX system shall have guarantee/ warranty for period of 12 months & batteries shall have guarantee/ warranty for period of 24 months from the date of taking over the installations by the department against unsatisfactory performance and/or breakdown.

a. All defects and deficiencies under guarantee period should be rectified promptly after lodging of complaint. The complaint can be lodged through telephonic message or through complaint register kept in the office or e-mail. For expeditious disposal of complaint, contractor will keep sufficient reserve of spare quantity & item to be kept as unit spares as decided with Engineer-in-charge. The contractor will furnish Telephone No. and his contact person to whom the complaint has to be lodged. During Guarantee period , if the complaints or fault will not be attended within 2 days , the same will be set right by the department at the risk and cost of the agency and this cost will be deducted from the security deposit of the contractor.

**ADDITIONAL & GENERAL TERMS AND CONDITIONS FOR UPS SYSTEM**  
**(FOR SUB HEAD -13)**

- 1 The UPS shall be online UPS.
- 2 The work shall be carried out strictly in accordance with the CPWD General Specifications for electrical works, Part-I internal 2023 and Part-II External, 2023 as amended upto date. All installations shall also comply with the requirements of Indian Electricity Rules, 1956 amended upto date. In case of items not covered by the above specifications the work shall be carried out as per the instructions of the Engineer-in-charge.
- 3 All components shall conform to relevant Indian Standard specification. Wherever existing these materials with ISI certification mark shall be used, unless specified otherwise in the Tender schedule.
- 4 All the materials to be used in the work shall be got approved by the Engineer-in-charge before procurement.
- 5 Bad workmanship shall be rejected in total.
- 6 All the debris due to the electrical work shall be cleared every now and then, site shall be not clean by the contractor at all times.
- 7 The contractor or his authorized representative will have to sign the site order book and comply with the remarks therein.
- 8 The contractor has to make his own arrangements for the watch and ward of the materials and other installations till the installation work is completely handed over to the department. No extra claim will be entertained on account of this. Any damage caused to the materials during or under storage will be to the contractors account.
- 9 The contractor shall make his own arrangement for all general and special T&P required for the work and no T&P shall be supplied by the department.
- 10 Samples of materials to be used on the work shall be got approved by the Engineer-in-charge before actual used. If any materials are rejected they shall be removed from the site forthwith.
- 11 Scope of work covers supply, unloading, Storing, installation, testing and commissioning of the system as per the technical specification & technical data sheet, installation cost shall include testing & commissioning also.
- 12 Necessary Copper cabling between UPS and batteries / battery breaker etc., shall be a part of UPS tender.
- 13 Necessary control cabling between different units of UPS shall be a part of UPS offer.
- 14 UPS installation cost shall include necessary MS angle iron base frame of suitable height for bottom cable terminations. The angle iron frame shall be powder coated with shade same as UPS.
- 15 Before procurement Vendor to submit dimensional GA drawing of UPS / Batteries and obtain approval of engineer-in-charge.
- 16 UPS System shall be procured directly from the approved OEMs and proof of purchase submitted along with Warrantee certificate and test certificates from OEM.
- 17 Testing and commissioning of the UPS system also shall be done in presence of the Engineer from UPS manufacturer and the system certified from OEM for satisfactory installation & Commissioning.

**Terms of payments**

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

basis.

70% after initial inspection and delivery at site in good condition on pro-rata

20% after completion of installation in all respects.

Balance 10% will be paid after testing, commissioning and handing over to the department for beneficial use.

#### 18 **Guarantee /Warranty**

All UPS shall have guarantee/ warranty for period of 12 months & batteries shall have guarantee/ warranty for period of 24 months from the date of taking over the installations by the department against unsatisfactory performance and/or breakdown.

- a. All defects and deficiencies under guarantee period should be rectified promptly after lodging of complaint. The complaint can be lodged through telephonic message or through complaint register kept in the office or e-mail. For expeditious disposal of complaint, contractor will keep sufficient reserve of spare quantity & item to be kept as unit spares as decided with Engineer-in-charge. The contractor will furnish Telephone No. and his contact person to whom the complaint has to be lodged. *During Guarantee period , if the complaints or fault will not be attended within 2 days , the same will be set right by the department at the risk and cost of the agency and this cost will be deducted from the security deposit of the contractor.*

#### **TECHNICAL SPECIFICATIONS OF 10 KVA ONLINE UPS SYSTEM**

<b>INPUT</b>	<b>Voltage</b>	<b>320V AC to 478V AC In Three phase</b>
	<b>Frequency</b>	<b>50 Hz +/- 10%</b>
	<b>Power Factor</b>	<b>≥0.9 to 0.99</b>
<b>OUTPUT</b>	<b>Voltage</b>	<b>415 V, +/- 1%</b>
	<b>Phase</b>	<b>Three phase</b>
	<b>Frequency</b>	<b>50 Hz ± 0.25%</b>
	<b>Waveform Distortion</b>	<b>Pure Sine wave</b>
	<b>Harmonic Distortion</b>	<b>&lt; 2% at full load for linear load and &lt; 5% atfull load for Non linear load</b>
	<b>Crest Factor</b>	<b>03:01</b>
	<b>Over load Capacity</b>	<b>125% for 5 Minutes and 150% for 1 Minute</b>
	<b>Efficiency AC to AC</b>	<b>&gt;90%</b>
	<b>Voltage Regulation</b>	<b>± 1%</b>
<b>TECHNOLOGY</b>	<b>TECHNOLOGY</b>	<b>Digital signal processing</b>
<b>BATTERY CHARGER</b>	<b>Type</b>	<b>Built in solid state float -cum-boost charger withautomatic boost / trickle charge modes with current limit features.</b>
<b>BYPASS</b>		<b>Synchronized static by pass</b>

<b>INDICATORS</b>	User friendly MIMIC Panel Multi function LED display/ LCD Display	UPS Status, Battery level, Load level, Fault line, Inverter, Bypass, fault/ Trip, battery / Load for 10 KVA Input and Output voltage, Input and Output frequency.
<b>AUDIBLE ALARM</b>	1. AC Failure	Sound every 4 seconds after line fails
	2. Battery Low	Sound every second when approaches battery low level
	3. UPS Fault	Continuous alarm
<b>PROTECTION</b>	Over / under voltage at I/P	Yes
	Short circuit & overload	The UPS shuts down and should not transfer to the bypass mode when a short circuit occurs on the output of the unit. After the short circuit removed the UPS will operate normally again. At short condition, the Fault LED lights as a warning to end users. Protection through MCB's and
		Advanced electronic circuitry.
	Lightning / Surge	Yes
<b>ENVIRONMENT</b>	Temperature	0 deg. C to 40 deg. C
	Humidity	0-90% at non condensing
	Audible Noise	Less than 50 db at 1 meter
<b>CONNECTIVITY</b>	Interface Port	DB 9 connector or RS 232 port for software interface. SNMP enable SNMP interface / Web enabled RMIC interface (optional)
<b>LOAD TESTING &amp; OVER LOAD</b>		Testing to be done at 125% for 5 Minutes 150% for 1 Minute

**List of Preferred List**

**PART-C-1**

**INTERNAL & EXTERNAL EI WORKS( SH:-I to 9)**

EQUIPMENT	MAKES
Occupancy Sensor	Dynalite/Lutron/Schneider /Philips/Legrand/ABB
MCBDBs i/c incomer MCCB/MCBs /RCCBs.(Only double door IP-43 DBs are to be used)( Similar make of DB & MCB,RCCB to be used)	Legrand / L&T/Siemens / Schneider/ABB.
Indicating Lamps(LED type)	Siemens/L& T/Teknic/BCH/GE
Push Buttons	Siemens/GE /C&S/Teknik/BCH
Connectors/Terminal Blocks	Elmex/Connectwell/Essen
PVC Insulated (FRLS) Copper conductor wires , Telephone cable	Havells/KEI/RR Kable/Finolex/polycab
XLPE Insulated Copper/ Aluminium conductor cables	Havells/KEI/RR Kable/Finolex/polycab
MS & GI Cable Tray	PILCO/Stealways/Slotco/Apex/Indana/S kytone/ Profab
Cable Glands	Comet/Jainsons/Braco / Dowell
Thimbles	Dowells/Action/Comet/Jainsons/Braco
Stove Enameled MS Conduit (ISI marked) and Accessories	BEC/AKG/ STEEL KRAFTS/RM COM
Moulded Case Circuit Breakers	Siemens/L&T /Schneid erElectric /ABB/LEGRAND/
Modular type Switches,Sockets,Plugs,RJ-45&RJ-11.	Legrand(Myrius)/ Schneider Electric(Livia) /Honeywell (Orna)/ ABB (Tvisha)/North West(Stylus)
Industrial sockets & plugs	Legrand/SIEMENS/ Schneider/ Hagar/ ABB
Ceiling Roses	Any ISI marked
GI Pipe / MS Pipe	Jindal/TATA/SAIL
PVC Pipes	Supreme/Prince/Astral /AKG/NORPACK/Atul
MCC Bs for LT/MV/Meter Panels/other Panels.	ABB/ Siemens/ Schneider/Legrand/ ASES
DWC PIPE	REX/DURALINE / SFMC/Jain Irrigation
Contactors/Relay/Digital Timer/Timer/Selector Switch	Schneider/L&T/Legrand/SIEMENS/ABB
Digital Measuring Instruments	L& T/ Elmeasure/ Conzerve/ HPL

NETWORKING VDI- PATCHPANELS,CAT6A,PATCHCORDS	LEGRAND/SYSTIMAX/ PANDUIT/BELDON/SIEMON
VDIRACKS	LEGRAND/RITTAL/SIEMON/ORTRONICS
LT Panel/ MV Panel	Adlec/SPC ElectroTech/C&S/ R.P. Control/ASES Neptune/TRICOLITE/STECH POWER/HEECOTECH
LED Light Fittings/Fixtures/Flood Lights etc.	Wipro/Philips/Signify/Havells/Jaguar/Cr ompton/ Trilux/Lighting Technology/Bajaj
Pole Junction box	Sintex/Hensel/Clipsal
Octagonal Pole	Bajaj/Surya/Crompton/Transrail/ Valmont
Changeover Switch	L&T/ SIEMENS/ABB/HAVELLS/Schneider
Ceiling Fan/Exhaust Fan/Fresh Air Fan	Havells/Usha/Orient/Crompton/ Bajaj
EMERGENCYLIGHTING SYSTEMANDCOMPONENTS	Hochiki/Cooper/Tecknoware/ASM/TM/ ASES
Pump set	Kirloskar/KSB/Crompton /Wilo/Mather Platt
Not mentioned in above List	As Decided by the E-in-C , whose decision is final and binding

### **PART-C-2**

#### **FIRE Extinguisher (SH:- 10)**

Particulars	Make
Fire Extinguisher	NewageBombay/Minimax/Life- guard/Kalpex/ Ceasefire/ASES.
Signage	NewageBombay/Minimax/Life- guard/Kalpex/ Ceasefire/ASES
( Not mentioned in above List )	As Decided by the E-in-C , whose decision is final and binding



**PART C- 3**

**SMART CLASS (SH:-11)**

Sl.No.	Description of Item	Makes
1	FRLS PVC Insulated Copper Conductor Wire , XLPE Al. armoured cable (ISI marked)	Same as C-1
2	Interactive flat Touch Display/Digital Board	Samsung/NEC/Cybernetyx (Germany) /Max hub /Christie
3	Digital Metallic podium	Trello/AHA/AGA/ADR/UNI
4	PTZ camera	Max hub/Clear One/Canon
5	Wireless Collar Microphone	Sennheiser/Audio /Technica/ Shure/ Electro Voice
6	Digital Signal Processor	Clear One/BSS/BiAmp
7	Wireless Hand Held microphone	Sennheiser/Electro-voice/AudioTechnica/ Shure
8	Speaker	JBL/Bosch/Berhinger/Crown
9	Power Amplifier	JBL/Bosch/Berhinger/Crown/ Dynacord/ ASES
10	All other items not covered above	As per samples approved by Engineer In-charge.

**PART C-4 CCTV (SH:-12)**

Equipment	Make
Camera	PELCO,SONY,BOSCH, AXIS
LED Display	LG/Sharp/Samsung/Sony/Panasonic
Network Switch	Allied Telesis /Cisco /HP/Juniper/Extreme
Not mentioned in above List	As Decided by the E-in-C , whose decision is final and binding

**PART (C-5 )**

**EPABX System**

**(SH:-14)**

DESCRIPTION	MAKE
EPABX	Matrix/Panasonic/Siemens/Alcatel
Console/Base Phone	Matrix/Panasonic/Siemens/Alcatel

CABLES:	Same as as Electrical Installation C-1
Not mentioned in above List	As Decided by the E-in-C , whose decision is final and binding

**PART-C-6 UPS (SH:-13)**

DESCRIPTION	MAKE
UPS	APC-MG/VERTIV/TOSHIBA-Mitsubishi(TMEIC)/EMERSON/NUMERIC/Riello
BATTERIES:	GLOBAL YUASA/EXIDE/AMAR RAJA/TATA
ACTIVEHARMONICFILTER:	SCHNEIDER/VERTIV/TMEIC(TOSHIBA-MITSUBISHI)/NUMERIC/ Riello
ISOLATIONTRANSFORMER:	SCHNEIDER/VERTIV/DATSON//NUMERIC/ Riello
STATICSWITCHES:	SCHNEIDER/VERTIV/MAGNAFLUX/NUMERIC/ Riello
CABLES:	Same as as Electrical Installation C-1
Not mentioned in above List	As Decided by the E-in-C , whose decision is final and binding

**Note (for all above sub-heads C-1 to C-6)**

1. The particular make and model under Preferred Makes shall be acceptable only if they comply to all the particular specifications, item of work and other conditions of the Contract.
2. For any item not covered in the above list, the contractor shall get the samples and make approved from the Department's E-in-C before the supply is made.
3. The Preferred makes mentioned under different parts of Part-C are interchangeable to various Sub-heads, if necessary, as decided by E-in-C , which will be final and binding.
4. In general, no change in brand/make from those mentioned in Preferred Makes will be entertained. However, in case of non availability of all brands and/or absolute necessity for the interest of the work, equivalent makes/products/materials having similar specifications/quality, decided as per sole discretion of the E-in-C of the department, may be considered for use in the work only after prior approval of the competent authority.
5. Decision of the E-in-C of the department on approval/disapproval of any make/brand from Approve Makes or equivalent makes/materials shall be final, binding and not arbitrable.

Executive Engineer(E)  
CPWD, Patn

## Schedule of Quantity

**Name of Work:** C/o Rural Self Employment Training Institute (RSETIS) PNB at Gaya, Bihar.

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b><u>Part - C - Electrical Component</u></b>					
<b>SH-1</b>	<b>WIRING</b>				
1.1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface/ recessed steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.				
1.1.1	Group C	260.00	Point	1845.00	479700.00
1.2	Wiring for light/ power plug with 2X4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed steel conduit along with 1 No 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	850.00	Metre	433.00	368050.00
1.3	Wiring for light/ power plug with 4X4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed steel conduit along with 2 Nos 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	600.00	Metre	662.00	397200.00
1.4	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required				
1.4.1	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	800.00	Metre	327.00	261600.00
1.4.2	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	150.00	Metre	924.00	138600.00
1.4.3	4 X 10 sq. mm + 2 X 6 sq. mm earth wire	250.00	Metre	1166.00	291500.00
1.4.4	4 X 16 sq. mm + 2 X 6 sq. mm earth wire	80.00	Metre	1645.00	131600.00
1.5	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
1.5.1	20 mm	300.00	Metre	223.00	66900.00
1.5.2	25 mm	400.00	Metre	256.00	102400.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
1.6	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	130.00	Metre	47.00	6110.00
1.7	Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required	53.00	Each	369.00	19557.00
1.8	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	80.00	Each	40.00	3200.00
1.9	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
1.9.1	LAN Cat-6 socket outlet.	40.00	Each	698.00	27920.00
1.9.2	15/16 amp switch ( For Geyser Switch)	3.00	Each	156.00	468.00
1.9.3	TV antenna socket outlet	5.00	Each	148.00	740.00
1.10	Supplying and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc as required.				
1.10.1	1 or 2 Module (75mmX75mm)	48.00	Each	298.00	14304.00
1.11	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	29.00	Each	586.00	16994.00
1.12	Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	3.00	Each	99.00	297.00
1.13	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed steel/ PVC conduit as required.				
1.13.1	1 run of cable	300.00	Metre	57.00	17100.00
1.13.2	2 run of cable	250.00	Metre	96.00	24000.00
1.13.3	3 run of cable	200.00	Metre	134.00	26800.00
1.14	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 2 Nos. 3 pin 5/6 A modular socket outlet and 2 Nos. 5/6 A modular switch, connections etc. as required.	30.00	Each	676.00	20280.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
1.15	Supplying & fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 25 A modular socket outlet and 25 A modular SP MCB, "C" curve including connections, painting etc. as required.	34.00	Each	727.00	24718.00
<b>SH-2</b>	<b>MCCB, MCB &amp; DBs</b>				
2.1	Providing and fixing following rating and breaking capacity and pole MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
2.1.1	63 Amp, 25KA, FPMCCB(ics=100%icu)	1.00	Each	10194.00	10194.00
2.1.2	100 Amp, 30KA, FPMCCB(ics=100%icu)	1.00	Each	7723.00	7723.00
2.2	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
2.2.1	6 way (4 + 18), Double door (Light)	3.00	Each	4974.00	14922.00
2.2.2	4 way (4 + 12), Double door (Power)	3.00	Each	4091.00	12273.00
2.3	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer ) as required.				
2.3.1	4 way (4 + 12), Double door ( Light)	1.00	Each	7512.00	7512.00
2.3.2	4 way (4 + 12), Double door (Power)	1.00	Each	7512.00	7512.00
2.4	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
2.4.1	Single pole	70.00	Each	256.00	17920.00
2.4.2	Triple pole	6.00	Each	1007.00	6042.00
2.5	Supplying and fixing Cable End Box (Loose wire box)(IP 43) suitable for following triple pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with testing and commissioning etc. as required.				
2.5.1	For 6 way, Double door TPN MCB DB.	6.00	Each	1124.00	6744.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
2.6	Supplying and fixing following rating, four pole, 415 V, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
2.6.1	40 A	3.00	Each	970.00	2910.00
2.6.2	63 A	3.00	Each	1034.00	3102.00
2.7	Supplying and fixing 63 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of three poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.	3.00	Nos	2411.00	7233.00
<b>SH-3</b>	<b>FITTINGS &amp; FIXTURES</b>				
3.1	Supply, Installation, Testing and Commissioning of 1200 mm sweep, BEE 5 star rated, ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, Power Factor not less than 0.9, Service Value (CM/M/W) minimum 6.00, Air delivery minimum 210 Cum/Min, 350 RPM (tolerance as per IS: 374-2019), THD less than 10%, remote or electronic regulator unit for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise-75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Supply, earthing etc. complete as required.	53.00	Each	2730.00	144690.00
3.2	Supply, installation, testing and commissioning of ISI marked, heavy duty metal body exhaust fan of 450 mm sweep 900 RPM along with metal louvre and all accessories suitable for operation on 240V single phase supply in the existing opening including making the damage good, connection, etc. complete as required.	1.00	Each	6934.00	6934.00
3.3	Supply, installation, testing and commissioning of 250 mm sweep fresh air fan of plastic body complete with louvre and all accessories suitable for operation on 240V single phase supply in the existing opening including making the damage good, connection, etc. complete as required.	18.00	Each	2122.00	38196.00
3.4	Supplying,Installation, testing and commissioning of surface mounting type 4' long LED batten fitting made of aluminium housing having minimum output of 2000 lumens as per general technical speciofications in the NIT with all accessories including connection etc. complete as required.	27.00	Each	876.00	23652.00
3.5	Supplying,Installation, testing and commissioning of surface mounting type 2' long LED batten fitting made of aluminium housing having minimum output of 1000 lumens as per additional specifications with all accessories including connection etc. complete as required.	17.00	Each	642.00	10914.00



Item No.	Description of Items	Quantity	Unit	Rate	Amount
3.6	Supplying, Installation, testing and commissioning of surface mounting round/square shaped LED downlighter fitting with die cast aluminum housing duly powder coated and polycarbonate opal diffusser with lumen output not less than 1800 lumens as per additional specifications with all accessories including connection etc. complete as required.	45.00	Each	2138.00	96210.00
3.7	Supplying, installation, testing and commissioning of surface mounting round/square shaped LED downlighter fitting with die cast aluminum housing duly powder coated and polycarbonate opal diffusser with lumen output not less than 600 lumens as per additional specifications with all accessories including connection etc. complete as required.	34.00	Each	1152.00	39168.00
3.8	Supplying, installation, testing & Commissioning of surface type LED Panel Fitting of 36W, size 595mm x595mm, color temperature 5700K-6500K with full window glarefree opal diffuser & MS Powder coated White Housing & suitable rating LED driver etc in the existing false ceiling with the help of steel chain approx 1mtr x 2 nos i/c supplying & fixing from light point to fittings and connections with 3x1.5sqmm copper wire etc complete as required.	60.00	Each	6082.00	364920.00
3.9	SITC of fancy wall bracket fitting, metal body chrome plated complete with 7 watt LED lamp, suitable for single phase 240V 50Hz AC supply i/c connection etc. as reqd.	2.00	Each	1483.00	2966.00
3.10	Supplying, installation, testing and commissioning of 3 module LED foot light along with GI modular box and plate, suitable for 230 volts single phase, 50 Hz AC supply i/c connection complete etc. as required.	6.00	Each	1502.00	9012.00
<b>SH-4</b>	<b>EARTHING</b>				
4.1	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	10.00	Each	6855.00	68550.00
4.2	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	4.00	Set	7472.00	29888.00
4.3	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	25.00	Metre	706.00	17650.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
4.4	Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.	20.00	Metre	287.00	5740.00
4.5	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	15.00	Metre	244.00	3660.00
4.6	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	10.00	Metre	70.00	700.00
4.7	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	350.00	Metre	42.00	14700.00
<b>SH-5</b>	<b>LIGHTNING CONDUCTOR</b>				
5.1	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, G.I. tube, having single prong at top, with 85 mm dia 6 mm thick G.I. base plate including holes etc. complete as required.	4.00	Each	518.00	2072.00
5.2	Jointing copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc as required.	40.00	Each	113.00	4520.00
5.3	Providing and fixing G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For horizontal run)	200.00	Metre	126.00	25200.00
5.4	Providing and fixing G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For vertical run)	30.00	Metre	197.00	5910.00
5.5	Providing and fixing testing joint, made of 20 mm X 3 mm thick G.I. strip, 125 mm long, with 4 nos. of G.I. bolts, nuts, chuck nuts and spring washers etc. complete as required.	4.00	Each	121.00	484.00
5.6	Providing and laying G.I. tape 32 mm X 6 mm from earth electrode directly in ground as required.	20.00	Metre	195.00	3900.00
<b>SH-6</b>	<b>MV CABLE LALYING</b>				
6.1	Supplying of following sizes aluminium conductor armoured ISI marked XLPE insulated & PVC sheathed UG power cable of 1.1 KV grade conforming to IS:7098 (Part-I) including testing etc. complete as required.				
6.1.1	3.5 x 50 sq. mm.	100.00	Metre	600.00	60000.00
6.1.2	3.5 x 70 sq. mm.	100.00	Metre	811.00	81100.00
6.1.3	2 x 10 sq. mm.	500.00	Metre	212.00	106000.00
6.1.4	2 x 16 sq. mm.	100.00	Metre	216.00	21600.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
6.2	Supplying and laying of 3 x 4 sq. mm. copper conductor flat submersible cable of 1.1 kV grade including testing etc. complete as required.	70.00	Metre	210.00	14700.00
6.3	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
6.3.1	Upto 35 sq. mm	600.00	Metre	37.00	22200.00
6.3.2	Above 35 sq. mm and upto 95 sq. mm	180.00	Metre	57.00	10260.00
6.4	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
6.4.1	Upto 35 sq. mm (clamped with 1 mm thick saddle)	20.00	Metre	55.00	1100.00
6.5	Supplying and making end termination with brass compression gland and aluminium lugs and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
6.5.1	2 X 10 sq. mm (19mm)	20.00	Each	241.00	4820.00
6.5.2	2 X 16 sq. mm (22mm)	2.00	Each	256.00	512.00
6.5.3	3½ X 50 sq. mm (35mm)	2.00	Each	413.00	826.00
6.5.4	3½ X 70 sq. mm (38mm)	2.00	Each	468.00	936.00
6.6	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc..direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
6.6.1	63 mm dia (OD-63 mm & ID-51 mm nominal)	800.00	metre	247.00	197600.00
<b>SH-7</b>	<b>COMPOUND/STREET LIGHTING</b>				
7.1	Supply, installation, testing and commissioning of 6 metre long octagonal GI pole continuously tapered (bolt fixing type) in single section made out of 3 mm thick sheet having top minimum dia 70 mm and bottom minimum dia 130 mm with 4 Nos. hot dipped galvanized foundation bolts of size 20 mm dia x 600 mm long, base plate (220 x 220 x 12 mm) alongwith 1 metre long single arm bracket of proper top dia to accommodate existing LED street light fitting i/c providing and fixing bakelite sheet of size 25 cm x 10 cm x 6 mm thick, 4 way connector of suitable size and 1 No. 6A "C" curve SP MCB inside the pole complete with door and locking arrangement near bottom of the pole and erection on the existing RCC/ PCC foundation etc complete as required.	18.00	Each	22056.00	397008.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
7.2	Supplying & fixing of surfaced/ recessed type weather proof cable junction box of size 205mm X 255mm X 112mm deep made out of DK thermoplastic cable junction boxes IP-66/ IP-69 for outdoor installation and knock out plate for cable entry including supplying and fixing 4way connector, din bar and 1No. SP MCB (C-series) inside the box etc. complete as required.	18.00	Each	4261.00	76698.00
7.3	Supplying, installation, testing and commissioning of IP 66 LED street light fitting having system output of minimum 7000 lumens as per additional specifications complete with all accessories suitable for mounting on existing bracket complete with connection with 3x1.5 sq mm PVC insulated FRLS single core copper conductor cable from existing pole box/ connector to the fitting etc as required.	18.00	Each	6744.00	121392.00
7.4	Supplying, installation, testing and commissioning of IP 66 LED flood light fitting having system output of minimum 12000 lumens as per additional specifications made with pressure die cast aluminium housing complete with all accessories suitable for mounting on existing high mast complete with connection etc as required.	6.00	Each	8939.00	53634.00
7.5	Supplying, Installations, Testing & Commissioning of LED post top lantern luminaire suitable for 230 V, 50 Hz, AC supply having aluminium die cast housing, polycarbonate diffuser, IP-65 protection, high power LED, driver on the existing pole top with lumen output not less than 4000 lumen as per additional specifications i/c supplying and drawing of 3 x 1.5 sq mm FRLS PVC insulated copper conductor single core cable in the pole from the cable loop box at the base of pole to the luminaire including connection etc complete as required.	2.00	each	12473.00	24946.00
7.6	Supplying Installation Testing and commissioning of minimum 10 watt Cylindrical/cube shaped, integral decorative LED bollard with opal acrylic with IP 65 protection along with driver and other accesories including CC foundation of size (0.30x0.30x 0.70.) 0.40 mtr below ground and 0.30 above the ground. CC foundation of grade 1:2:4 , with four nose. Anchor bolts on CC foundation. etc as reqd.	8.00	Each	5518.00	44144.00
7.7	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required. 3 core x 1.5 sq. mm	50.00	Meters	95.00	4750.00
7.8	Excavation for foundation in soft soil including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 metres.	4.00	Cum	286.85	1147.40

Item No.	Description of Items	Quantity	Unit	Rate	Amount
7.9	Providing and laying in position cement concrete 1:3:6 (1 cement : 2 coarse sand : 6 graded stone aggregate 40 mm nominal size) in foundation of pump, DG set, street light pole, etc including form work etc as required.	4.00	Cum	6670.25	26681.00
7.10	Providing 15 mm thick cement plaster of mix 1:4 (1 cement : 4 fine sand) at all levels.	6.00	Sqm	406.10	2436.60
<b>SH-8</b>	<b>FEEDER PILLAR</b>				
8.1	Fabrication and SITC of outdoor floor mounted (IP-54) cubical double door feeder pillar board to accommodate the following switch gears made out from 2 mm thick CRCA sheet fully compartmentalized and powder painted suitable size with Busbar & cable alley , having <b>300 Amp.</b> Capacity TP & N PVC Sleeved aluminium bus-bar, suitable for 415 Volt, 3 phase 50 Hz AC supply LED phase indicating lamp i/c connection, interconnection earthing, with providing & fixing of following MCCBs (Ics= 100% Icu) & electrical accessories etc. complete with following MCCBs (Ics= 100% Icu) i/c powder coated with seven tank process of approved shade, two nos earthing studs, fabricated with 50 mm x 50 mm x 5 mm M S angle iron base and legs of length 500 mm and installation the feeder pillar on cc/ brick foundation etc complete as required & having working depth of feeder pillar not less than 400 mm including providing and accommodated the following switch gears and accessories etc. as required.				
A	INCOMER:				
(i)	200 Amps, 4 Pole, 36 KA (Ics= 100% of Icu) MCCB with T/M Release, Adjustable overload and short circuit settings with Rotary handle & Spreader link - 1 No.				
B	METERING :				
(i)	Indicating LED Lamp (R/Y/B) with back up control MCBs - 1 set				
(ii)	Multifunction Meter with required capacity CT- 1 Set				
C	OUTGOINGS:				
(ii)	100 Amps, 4 Pole, 25 KA (Ics= 100% of Icu) MCCB with T/M Release, Adjustable overload and short circuit settings with Rotary handle & Spreader link - 1 No.				
(i)	63 Amps, 4 Pole, 25 KA (Ics= 100% of Icu) MCCB with T/M Release, Adjustable overload and short circuit settings with Rotary handle & Spreader link - 2 Nos.				
(iii)	40 Amps, 4 Pole, 25 KA (Ics= 100% of Icu) MCCB with T/M Release, Adjustable overload and short circuit settings with Rotary handle & Spreader link - 2 Nos.	1	Job	130570.00	130570.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
8.2	Fabrication, supplying, installation, testing and commissioning of outdoor feeder pillar (Protection Index -IP 54) of suitable size, made of 2 mm thick MS sheet, dust & vermin proof, having rain protection shade compartmentalised & segregated for each circuit, having hinged door in the fronts, locking arrangement, GI earth bus at the rear, earth stud, cable entry through gland plate of 3 mm thick, painted with 2 coats of red oxide primer & two coats of synthetic enamelled paints, 50 mm x 50 mm x 5 mm M S angle iron base and legs of length 500 mm and installation the feeder pillar on cc/ brick foundation etc complete as required & having working depth of feeder pillar not less than 400 mm including providing and accommodated the following switch gears and accessories etc. as required. (for bore well pump)				
A	INCOMER:				
(i)	63 Amps, 4 Pole, 25 KA (Ics= 100% of Icu) MCCB with T/M Release, Adjustable overload and short circuit settings with Rotary handle & Spreader link - 3 Nos.				
B	METERING :				
(i)	Indicating LED Lamp (R/Y/B) with back up control MCBs - 1 set				
(ii)	Multifunction meter with required capacity CT- 1 Set				
C	OUTGOINGS:				
(i)	32 Amps, 3 Pole, 10 KA MCB - 1 No.				
(ii)	DOL Starter (relay range 9-14 Amp) with single phasing preventor - 1 set				
(iii)	ON/OFF push button with indication-1set	1	Job	78342.00	78342.00
8.3	SITC of IP54 CRCA Sheet Steel duly phosphatized and powder coated with 7 tank process wall/floor mounted factory fabricated Street light Panel suitable for 3 phase having digital 24 hour Time Switch, 40A TPN MCB, 32 A TP Contractor, Auto/ Manual Selector switch, Panel lock/Pad Locking provision including connection etc. as required.	1.00	Each	31686.00	31686.00
<b>SH-9</b>	<b>WATER SUPPLY PUMPSETS</b>				
9.1	Supply, installation, testing and commissioning of following capacity multi stage submersible motor pump set for clear water application, directly coupled with suitable rating submersible induction motor for operation on 3 phase 415 volts, 50Hz AC supply. The pump should be of following discharge capacity, head and delivery size in the existing deep bore well including 1 sets of suitable size holding clamp made out of 50 mm x 5 mm MS flat with C.I. cover of bore well complete with all accessories etc. as reqd. details below:- (i) Working liquid : Clear water.	1.00	Job	48157.00	48157.00



Item No.	Description of Items	Quantity	Unit	Rate	Amount
	(ii) Head range: 26 Meters to 59 Meters (iii) Discharge range : 450 LPM to 100 LPM (iv) Rating : 3.37KW/ 5 HP, 3 phase, 415 Volts				
9.2	Providing, laying, testing & commissioning of 'B' class medium duty G.I. pipe conforming to IS 1239 including welding, fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				
9.2.1	50 mm dia	50.00	Metre	927.00	46350.00
9.3	Supplying and fixing of following sizes PVC coated steel rope along with accessories for holding the submersible motor pumping set as required.				
9.3.1	6 mm	70.00	Metre	75.00	5250.00
9.4	Supply, fitting and fixing of following size pipe fittings in the existing suction/ delivery pipe line complete with testing etc as reqd .				
9.4.1	50 mm dia, ISI marked gun metal gate valve (Class-2, PN 1.6 MPA)	3.00	Each	4994.00	14982.00
9.5	Supplying of following capacity multi stage submersible motor pump set for clear water application, directly coupled with suitable rating submersible induction motor for operation on 3 phase 415 volts, 50Hz AC supply. The pump should be of following discharge capacity, head and delivery size for deep bore well including testing etc complete as reqd. details below (Only supply for stand by)				
	(i) Working liquid : Clear water. (ii) Head range: 26 Meters to 59 Meters (iii) Discharge range : 450 LPM to 100 LPM (iv) Rating : 3.37KW/ 5 HP, 3 phase, 415 Volts	1.00	Job	45231.00	45231.00
<b>SH-10</b>	<b>FIRE EXTINGUISHERS</b>				
10.1	Supplying and fixing of ISI marked ABC type fire extinguishers of following capacity ISI marked (IS: 15683) filled with MAP 90% stored pressure type ABC powder with jet pipe of standard length comprising of easy snap safety seal, State of the art pressure gauge, Controllable discharge mechanism , Instalert, EPDM rubber hosepipe, squeeze grip valve, painting, clamp and dash fasteners complete in all respect as required.				
10.1.1	6 KG	6.00	Each	8127.00	48762.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
10.2	Supplying and fixing of CO2 type fire extinguisher of following capacity ISI marked as per IS 15683, CO2 cylinder as per IS 7285 CCE approved, valve as per IS 3224,CO2 gas as per IS 307,Internal discharge tube as per IS 738 complete with wheel discharge valve, hose and horn duly charged with CO2 gas i/c fixing with bracket on existing wall complete as reqd.				
10.2.1	4.5 Kg	6.00	Each	13334.00	80004.00
10.3	Providing and fixing of hanging/wall mounted signages with minimum 3 mm thick acrylic sheet PHOTO LUMINESCENT SAFETY SIGNAGES high intensity luminous properties i/c printed graphics symbols and written message etc. in different languages if required as per Engineer-in-Charge as per specifications complete as required.(Note :- The normal size of signage shall be as per the site requirement).	3000.00	sqcm	5.00	15000.00
<b>SH-11</b>	<b>SMART CLASS ROOM</b>				
11.1	SITC of Cardioid <b>Headmic</b> Wireless Microphone with following specifications below. Power supply 12 V DC nom. / 300 mA. AF frequency response - 50 to 16,000 Hz (-3 dB). Operating time - approx. 10 hrs. Microphone -condenser .THD, total harmonic distortion - ≤ 0.9% . Sensitivity (at peak deviation) < 3 μV at 52 dB(A) rms AF frequencv response -50 to 16.000 Hz (-3 dB) Line/Mic level 20 dB	1.00	Each	43345.00	43345.00
11.2	SITC of Cardioid Wirelsss <b>Handheld</b> Microphone with following specifications below: Modulation -wideband FM Signal-to-noise ratio. ≥ 103 dBA THD.... ≤ 0.9% AF frequency response... 50 to 16,000 Hz (-3 dB) Line/Mic level.... 20 dB, switchable RF output power . 10 mW	2.00	Each	41129.00	82258.00
11.3	SITC OF <b>75 inch</b> 4K UHD Android 11 4 GB RAM, 32 GB ROM With built in OPS of same Company as of Digital board i5 11 th gen 8 GB RAM 128 GB SSD windows activated Minimum 12 W speakers X 2 Dry bonding with maximum 1mm Air Gap, 40 touch point A 55X 4 CPU , HDMI OUT X 1, 3X HDMI INput HDMI 2.0 -4K @60Hz 1 VGA in , 4 USB 3.0 , TYpe c x 1 Audio In, Audio Out, SPDIF, 7 mohs standard,IR recognition technology touch accuracy 1.5 mm.	1.00	Each	367718.00	367718.00
11.4	SITC OF 6 channel <b>Audio Mixer</b> for Multiple Input & Output. Input channels: 6 Line Inputs (2 mono, 2 stereo), 2 Mic Inputs with 48V phantom power and HPH per channel. Output channels: 2 ST, 1 PHONES. Bus: 1 ST . AC Adapter PA-130 (DC12V/1.0A) 120V/60Hz or MU18 (DC12V/1.5A) 100-240V 50/60Hz.	1.00	Each	1987.00	1987.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
11.5	SITC OF Full HD 1080p30 video, 12x optical zoom, Professional-grade HD USB <b>PTZ camera</b> for conference rooms, web conferencing, UC applications and more.Controlling the camera's functions via IR remote, RS-232, or UVC protocol.Lens : 12x, f3.5MM – 42.3MM,f1.8 – f2.8,Focus Mode: Auto Focus Minimal Illumination : 0.5 lux @ (f1.8,Agc On)Shutter : 1/30S – 1/10000SWhite Balance : Auto , Indoor, Outdoor, One Push, ManualBacklight Compensation : SupportedDigital Noise Reduction : 2D & 3D Digital Noise Reduction	1.00	Each	167530.00	167530.00
11.6	SITC of <b>Ceiling Mount for camera</b> with adjustable height options	1.00	Each	4875.00	4875.00
11.7	SITC of 10 M high speed <b>USB 3.0 Active cable</b> for video camera .	1.00	Each	7712.00	7712.00
11.8	SITC of <b>Power Amplifier</b> . Rated Power into 4 Ω or 8 Ω; 1kHz, ≤ 0.5% THD , Number of Output Channels - 2 , Total Harmonic Distortion (THD) - <0.5%, Signal-to-Noise Ratio - >97dB,	1.00	Each	101936.00	101936.00
11.9	SITC of <b>Wall Mount Speakers</b> . Frequency Range (-10 dB) 1: 70 Hz - 20 kHz Frequency Response (±3 dB) 1: 80 Hz - 18 kHz Sensitivity3: 85 dB (60 Hz – 20 kHz) half-space (mounted on a wall) Nominal Coverage Angle: 140° horizontal x 120° vertical Directivity (Q): 6.9 Directivity Index (DI): 8.4 dB Rated Maximum SPL4: 108 dB peak (102 dB continuous, 2 hr) @ 1m Nominal Impedance: 8Ω (at 8Ω tap setting) Minimum Impedance: 7.1Ω at 270 Hz Transformer Taps: 70V: 25 W, 12.5 W, 6.3 W, 3.2W 100V: 25 W, 12.5 W, 6.3 W Insertion Loss: <1.0 dB at any tap setting Thru Setting: 8Ω nominal Maximum Input Voltage: 18 V RMS (2 hrs), 36 V peak.	4.00	Each	16753.00	67012.00
11.10	SITC of <b>PC</b> with intel core i5 12 th generation processor. 8 GB RAM 512 GB SSD 22 inch display wireless Keyboard & Mouse with windows 11.	1.00	Each	67367.00	67367.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH-12</b>	<b>CCTV SYSTEM</b>				
12.1	<b>SITC of Indoor Type Dome camera</b> with 1/2.8" <b>2 MP progressive CMOS</b> , 3.2-10 mm motorized focus zoom lens,Min Triple Stream Support, Inbuilt Smart IR LED, IR Distance of 30m; 0.06 lux color/0 lux with IR LEDs on,H.264 high profile, <b>WDR min 120 dB</b> , True Day/Night, Inbuilt Analytics- Rule based alarms and tracking, Line crossing, Enter / leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, 3D tracking, Built in Power over Ethernet (PoE), <b>Waterproof (IP66) and IK10 vandal resistant camera housing</b> ; Min 1 TB Micro SD Card Storage support, Bi-direction audio communication, ONVIF Profile G compliant , UL Listed. Camera should have TPM module & PKI support to gurantee protection from attacks/ hacking activity	6.00	Each	43966.00	263796.00
12.2	<b>SITCof Outdoor Type Bullet Camera</b> with 1/2. 8" 2 MP progressive CMOS, 1080P high definition , 3.2- 10 mm motorized focus zoom lens, Min Triple Stream Support, Inbuilt Smart IR LED with 30m Distance, Video compression: H.265; H.264; M- JPEG, True WDR min 120 dB, True Day/Night), 3DNR and Built in Power over Ethernet (PoE), Min 1TB Micro SD Card Storage support, Bi-direction audio communication , Inbuilt Analytics- Rule based alarms and tracking, Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, 3D tracking, Waterproof (IP66) and IK10 vandal resistant camera housing, Working temp -20°C to 40°C, PCI-DSS compliant Cyber security, Security :The on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support, guarantee superior protection from malicious attacks ; UL Listed.	8.00	Each	46182.00	369456.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
12.3	<b>SITC OF 16 channel NVR</b> with following specifications. Environment : indoor . Supported devices: PoE Max. 8 RJ45 PoE ports (115 W; 25.5 W max. per port) connected with DHCP configuration (maximum 16 IP channels possible) RJ45 Ethernet connection (10/100/1000Base-T according to IEEE802.3). Maximum main power consumption (no HDD) - 8.7 W without PoE, 15.2 W with PoE . Maximum power consumption of PoE+ switch -115 W . Maximum power consumption (per PoE+ port) - 25.5 W . Decoding compression - H.265/H.264/MJPEG Speed - Max. 60 IPS per channel, configurable Bit rate - 16 kbps to 24 Mbps per channel Record interval - 1~120 min (default: 60 min), Pre-record: 1~30 sec, Post-record: 10~300 sec Mode - Manual, Scheduled (regular, motion detection, alarm), Stop Resolution - 8MP, 6MP, 5MP, 3MP, 1.3MP, 1080p, 720p . Motion detection set by camera - Essential or Intelligent Video Analytics (IVA), Motion + Alarm activations - Video loss, motion detection, input alarm, system alarm. Events triggered by alarm - Recording, PTZ movement, alarm out, email, buzzer, screen message, Mon A and B activated, mobile push notification . Maximum IP camera channels - 16 Maximum incoming bandwidth - 256 Mbps Maximum recording bandwidth - 192 Mbps Maximum transmission bandwidth - 128 Mbps Display Resolution - 3840×2160, 1920×1080, 1280×1024, 1280×720, 1024×768 OSD - Camera title, Time, Video loss, Motion detection, Recording, PTZ.	1.00	Each	187563.00	187563.00
12.4	<b>SITC of Network Switch 24 port Poe L2 Semi manged gigabyte.</b> 10/100/1000 Mbps Base-T auto-sensing PoE ports. 2 # 1000 Base-x SFP uplink ports. Bandwidth: 20 Gbps full duplex. Address database size: 4k media access control (MAC). PoE (46 Watts of power budget). Per RJ45 port: Link/activity, speed, PoE status.	1.00	Each	69671.00	69671.00
12.5	<b>SITC of 6 TB HDD</b> for Surveillance.	1.00	Each	20868.00	20868.00
12.6	Supply, Installation, Testing and Commissioning of 55 inch monitor for CCTV surveillance.	1.00	Each	110315.00	110315.00
12.7	SITC of Wall Mounted Network Rack 4U.	1.00	Each	7889.00	7889.00

Item No.	Description of Items	Quantity	Unit	Rate	Amount
<b>SH-13</b>	<b>UPS</b>				
13.1	Supplying, Installation, Testing and Commissioning of IGBT Based Inverter and Rectifier both side true online double conversion <b>1 x 10 kVA UPS</b> having 3 phase input and 3 phase output with 30 minutes battery backup using suitable voltage and number of SMF batteries having minimum 10000 VAH (cumulative capacity of all batteries) with M.S. Powder Coated Rack for batteries i/c suitable size FRLS PVC Insulated copper conductor cable between diffrent batteries and batteries to UPS connection etc.as required.	1.00	Job	510983.00	510983.00
<b>SH-14</b>	<b>IP BASED EPABX</b>				
14.1	<b>SITC of IP-PBX System</b> with auto Discovery and Zero Configuration of SIP endpoints, Integrated 8 PSTN trunk FXO ports, 2 analog telephone FXS ports with lifeline capability and up to 50 SIP trunk accounts, Built-in call recordings server; recordings accessible via web user interface, Gigabit network ports with Integrates PoE, USB, SD card, Built-in Call Detail Records (CDR) for tracking phone usage by line, date, etc., Supports up to a 5-level IVR (Interactive Voice Response), Supports any SIP video endpoint that uses the H.264, H.263 or H.263+ codecs, supports up to 800 users and 100 concurrent calls.	1.00	Each	13719.00	13719.00
14.2	<b>SITC of Basic IP phone</b> with SIP RFC3261 standards, dual switched auto-sensing 10/100 Mbps ethernet ports, integrated POE network interfaces, 200x80 pixel (3.3") Backlit LCD display, 8 line keys with up to 4 SIP accounts, 4 XML Programmable context sensitive softkeys, RJ9 headset jack,HD Audio, 5 Navigation/Menu, 8 dedicated function keys, call log upto 500 records etc as required.	10.00	Each	12941.00	129410.00



Item No.	Description of Items	Quantity	Unit	Rate	Amount
14.3	SITC of 8 port gigabit POE network Managed switch with 24Port 10/100/1000M complete set.	2.00	Each	25218.00	50436.00
14.4	SITC of 6U equipment rack complete etc as required.	2.00	Each	6028.00	12056.00
	Total (DSR Items)				3146061.00
	Add GST enhancement (MF = 0.0633) on DSR items only.				199145.66
	Total Amount of MR Items				4812528.00
	Grand Total				8157734.66
Sub (1 to 14) Total for Electrical Component					8157735.00

Name of the Firm:-	**
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Sr. No.	Option (Only one coloured box should be filled by the Tenderer)	% in Figures	In Words
1	Percentage below on Estimated Cost put to tender	**	
2	Percentage above on Estimated Cost put to tender	**	
3	At par of Estimated Cost put to tender (the quoted percentage should be mentioned "0" in figures columns and "ZERO PERCENT" in words column)	**	

\*\* To be filled by Agency