

Enquiry Particulars	
Regional Office	EE - CED - II, CCU
Office Inviting Bids	EE - CED - II, CCU
Tender ID	90805
NIT/RFP NO	13/EE/CED-II/CCU/2024-25
Name of Work	Construction of New Hostel Block (G Plus 2) for IGnFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGnFA, Dehradun. (Taken out of main work)
Subwork/Packages	
Time Allowed	45 days
Tender Type	OPEN
Procurement Type	WORKS
Type of Work	Civil Works - Buildings
Category of Tendered	COMPOSITE
Estimated Cost	94,24,009
Bid Type	Percentage
Bid Submission Closing Date & Time	16/10/2024 15:00
Bid Validity Period (In Days)	30
Bid Validity Expiry Date	15/11/2024 15:30
Tender Notice Type	Standard Notice Tender
Competitive Bidding Type	NCB

Tender Inviting Authority Particulars	
Office Inviting Bids	EE - CED - II, CCU
Designation	Executive Engineer
Address	Room No. 735, CCU
Contact Details	9212201613
Email	rajesh.k1964@gov.in

EMD Details		
EMD(INR)	EMD In Favour Of	Mode of Payment
Rs. 1,88,480	Executive Engineer, CED-II, CCU, MoEF&CC, New Delhi	DD,FDR,BC,BG

Bid Openers						
Department User Name	Region	Mobile Number	Email	Designation	Certificate serial No	Certificate Expiry
Rakesh Joshi	EE - CED - II, CCU	9888468350	rakeshjoshi.geit@gmail.com	Assistant Engineer	1a849167ebd91162	10/01/2026 11:27
RAJESH KUMAR	EE - CED - II, CCU	9212201613	errajeshkaushal64@gmail.com	Executive Engineer	2a417fe1fa	01/03/2026 04:04

Tender Documents				
S.No	File Name	File Description	File Size (in Bytes)	Uploaded Date

1	NIT New Hostel update.pdf	NIT 13	1483668	08/10/2024 12:52
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**Mandatory Documents Details**

S.No	Documents Required from Vendor	Document Type
1	Copy of EMD	Mandatory
2	Copy of receipt of EMD	Mandatory
3	Valid Enlistment Order of the CPWD registered Contractor in appropriate class of composite B and R category.	Mandatory
4	GST registration Certificate of the state in which the work is to be taken up, if already obtained by the bidder or required undertaking.	Mandatory
5	PAN Card issued by Income Tax Department	Mandatory
6	Any other document specified in NIT	Mandatory

**Eligibility Documents Details**

S.No	Documents Required from Vendor	Document Type
1	Valid Enlistment Order of the CPWD registered Contractor in appropriate class of composite B and R category.	Mandatory

**Tender Covers**

S.No	Cover Name	Bid Opening date	Dependent Cover Name
1	Single Bid	16/10/2024 15:30	

**Single Bid**

S.No	File Name	File Size(in Bytes)
1	90805-PercentageComposite1.xls	60928

**Name of Work: Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)**

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NIT No. 13/EE/CED-II/CCU/2024-25 approved for Rs. **94,24,009/-** (Civil: Rs.56,06,538/- + Electrical: Rs. 38,17,471/-) (Rs. Ninety Four Lakhs Twenty Four Thousand Nine Only) and containing page No. 1 to 113.

Assistant Engineer (E)

Assistant Engineer (P)

Executive Engineer

# PART-A

**(Form CPWD- 6 & 7,**  
**Schedule A to F)**

**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR E-TENDERING FORMING  
PART OF BID DOCUMENT AND TO BE POSTED ON WEBSITE**

The **Executive Engineer, CED-II, CCU, MoEF&CC, New Delhi** (email: [eeecd2ccu-mef@gov.in](mailto:eeecd2ccu-mef@gov.in)) on behalf of President of India invites **Percentage rate bids** from approved and eligible contractors of CPWD in appropriate class and category for following work:

NIT No.	Name of work and location	Estimated cost put to bid	Earnest Money	Period of Completion	Last date & time of submission of bid, and other Documents as specified in the bid document	Time & date of opening of bid
2	3	4	5	6	7	8
13/EE/CED-II/CCU/2024-25	Construction of New Hostel Block (G+2) for IGNSA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNSA, Dehradun. (Taken out of main work)	Rs. 94,24,009/- (Civil: Rs.56,06,538/- +Elect.: Rs. 38,17,471/-)	Rs. 1,88,480/-	45 days	Upto- 3 PM on 16.10.2024	At 3.30 PM on 16.10.2024

- 1) The contractor submitting the tender should read the schedule of quantities, additional conditions, additional specifications, particular specifications, CPWD-6 and other terms and conditions given in the NIT and drawings. The bidder should also read the General Conditions of Contract for CPWD Works 2020 for construction work with upto date correction slips. The Tender is available as Government of India Publications and on CPWD website at <https://etender.cpwd.gov.in> however, provisions included in the tenderdocument shall prevail over the provisions contained in the standard form. The sets of drawings and NIT shall be available in the office of **Executive Engineer, CED-II, CCU, MoEF&CC, New Delhi**. The contractor should also visit the site of work and acquaint himself with the site conditions before tendering. He should only submit his tender if he considers himself eligible and he is in possession of all the required documents. The following conditions, which already form part of the tender conditions, are specially brought to his notice for compliance while submitting the tender online. They are requested to comply following instructions.
  - a) Tenders with any condition including that of conditional rebates shall be rejected forth with.
  - b) The successful bidder shall be required to submit a Performance Guarantee of 5% (Five Percent) of the tendered amount within 15 days of issue of letter of intent. This period can be further extended by Engineer-in-Charge up to a maximum period of 07 days on the written request of the contractor and with late fee as defined in Schedule F.
  - c) GST and Labour-Cess etc. as applicable shall be borne by the contractor himself. The contractor shall quote his rates considering all such taxes and hence their quoted rates should be inclusive of all the tax components.

- d) It will be obligatory on part of the Contractor/ Bidder to tender for and sign the tender documents for all the component parts. The department reserves right to accept tender in full or in part without assigning any reasons.
- 2) The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- 3) Information and Instructions for bidders posted on websites all form part of bid document.
- 4) The enlistment of the contractors should be valid on the last date of submission of bids. In case the last date of opening of bid is extended, the enlistment of contractor should be valid on the original date of opening of tender.
- 5) The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen in the office of **Executive Engineer, CED-II, CCU, MoEF&CC, Dehradun** on all working days between 11 AM to 4 PM except Sunday and public holidays and downloaded from website <https://etender.cpwd.gov.in> free of cost.
- 6) 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/CCU, MoEF&CC within the period of bid submission** and uploading the mandatory scanned documents as mentioned in the NIT such as Insurance Surety Bond or Demand Draft or Pay order or Banker`s Cheque or Deposit at call Receipt or Fixed Deposit Receipts and Bank Guarantee of any Scheduled Bank towards EMD in favour of **“Executive Engineer, CED-II, CCU, MoEF&CC, New Delhi”** receipt of deposition of original EMD to any division office of CCU, MoEF&CC/ CPWD or office of Executive Engineer, CED-II, CCU, New Delhi and all other documents as mentioned in NIT.
- 7) The online bids will be submitted upto 3 PM on 16.10.2024. The online bid shall be opened at 3:30 PM on 16.10.2024.
- 8) Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.
- 9) The intending bidder must have valid class-III digital signature to submit the bid.
- 10) The Executive Engineer of any division of CCU, MoEF&CC/CPWD shall receive the original EMD for tender of other division/ Divisions.
- 11) Copy of Enlistment Order and certificate of work experience and other documents as specified in the bid document shall be scanned and uploaded to the e-tendering website within the period of bid submission. However certified copy of all the scanned and uploaded documents as specified in the bid document shall have to be submitted by the lowest bidder only physically in the office of tender opening authority as and when directed by Engineer-in-charge. **Online bid documents submitted by intending bidders shall be opened only of those bidders, whose all documents scanned and uploaded are found in order including scanned copy of EMD & receipt of Deposition of EMD.**

- 12) On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
- 13) Contractor can upload documents in the form of JPG format and PDF format.
- 14) 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".
- 15) 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).
- 16) The required documents meeting the criteria to qualify as "approved and eligible contractors of CPWD" along with other documents as mentioned under para "List of Documents to be scanned and uploaded within the period of bid submission" below, as uploaded by the agency and hard copies received subsequently shall be checked. The financial bid of only those agencies shall be opened who are found to be eligible agencies, as per this NIT.
- 17) The department reserves the right to reject any prospective bid without assigning any reason.
- 18) 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.
- 19) While submitting the revised bid, contractor can revise the rate any number of times but before last time and date of submission of bid as notified.
- 20) In case of composite tenders, the contractor submitting the tender should read all the three Parts of the tender viz. Part-A, B & C, which are containing schedule of quantities, additional & special conditions, additional specifications, particular specification and other terms and conditions given in the NIT and drawings for Major as well as Minor component of work. Details of these parts are summarized as under:
  - **Part A :- CPWD-6, CPWD-7 including schedule A to F for major and minor component of the work, Standard General Conditions of Contract for CPWD 2020 as amended/ modified upto last date of submission of bid.**
  - **Part B :-** Conditions & specifications and schedule of quantities applicable to major component of the work.
  - **Part C :-** Conditions and specifications and schedule of quantities applicable to minor component of the work.
  - **Part D :-** Performa for quoting the rates by bidder.  
The **Major** Component of work is **Civil** Work and **Minor** Component of work is **Electrical** Work.
- 21) The bidders should also read the General Conditions of Contract for CPWD **2020 (Construction work)** amended up to 19.05.2023, which is available as Govt. of India Publications; however, provisions included in the tender document shall prevail over the provisions contained in this standard form. The set of drawings and NIT shall be available with the Executive Engineer.
- 22) **This work is of urgent nature, the contractor should also visit the site of work and acquaint himself with the limited working space available at site and soil conditions before tendering. The contractor is required to arrange separate**

**storage and working space away from site for the execution of work.**

- 23) The main contractor shall execute the minor component(s) also. He should be either an eligible contractor himself for associate with himself an eligible agency(s) for execution of electrical work as per CPWD-6 for e-tendering. The contractor shall indicate the names of upto three such agencies within prescribed time as “**Minor component agencies**”. In case the details of electrical agency are not submitted by the bidder or are not proper then these shall be submitted before acceptance of the bid.
- 24) After acceptance of the tender by competent authority, the EE-in-charge of major component of the work shall issue letter of award on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE-in-charge of major component and has also to sign two/ or more copies of agreement depending upon number of EE’s in-charge of minor components. One such signed set of agreement shall be handed over to EE in charge of minor component. **EE** in charge of major component will operate part A, B and D (Annexure A) of the agreement. **EE** in charge of minor component(s) shall operate Part A, C and D (Annexure-B) of the agreement.
- 25) The main contractor has to enter into agreement with the contractor(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to EE in charge of minor component as well as to EE in charge of major component. In case of change of associate contractor, the main contractor has to enter into agreement with the new contractor associated by him.
- 26) Tenders with any condition including that of conditional rebates in the tender document shall be rejected forthwith.
- 27) The **online percentage rate(s)** must be quoted in decimal coinage. Amount shall be calculated and rounded in full rupees by ignoring fifty paisa and considering more than fifty paisa as rupee one.
- 28) The successful bidder shall be required to submit a Performance Guarantee of **5% (Five percent)** of the composite contract amount within a period of issue of letter of acceptance as specified in schedule ‘F’.
- 29) The contractor shall have to execute guarantee bonds in respect of Stone work, water supply, sanitary installation & drainage works, water proofing works, CPVC and Aluminum Works as per Performa at Annexure- I & VI (Page No. 65-72).
- 30) GST on materials as applicable shall be paid by the contractor himself. The contractor shall quote his rates considering all such taxes.
- 31) Attention is also drawn to Clauses 6 and 7 of General Condition of Contract for CPWD works 2020 for construction works, which prescribes the procedure for computerized recording of measurement and preparation of bill by contractor.
- 32) Intending bidder may submit physical mile stone on the basis of their resources and methodology at the time of tendering as indicated in the “Schedule F”, otherwise it will be assumed that agency is agreeable to physical milestones mentioned in the table.
- 33) Intending bidder may give detailed activities/ programme for each milestone fixed in the



tender document within 15 days after award of work.

- 34) Payment for the items with less use of materials beyond permissible limits as mentioned in Schedule 'F' of Part-A & C shall not be made to contractor.
- 35) **List of Documents to be scanned and uploaded within the period of bid submission:**
- a) Insurance Surety Bond / Treasury Challan/ Demand Draft/ Pay Order or Banker's Cheque/ Deposit at Call Receipt/ FDR/ Bank Guarantee of any Scheduled Bank against EMD
  - b) Valid Enlistment Order of the CPWD registered Contractor in appropriate class of composite/B&R category.
  - c) Receipt of deposition of original EMD to division office of any Executive Engineer, CPWD (including NIT issuing EE).
  - d) **GST registration Certificate of the state in which the work is to be taken up, if already obtained by the bidder.**

If the bidder has not obtained GST registration in the state in which the work is to be taken up, **or as required by GST authorities**, then in such a case the bidder shall **scan and upload** following undertaking **along** with **other** bid documents.

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

**Executive Engineer**

<b>Form of Receipt of deposition of original EMD</b>		
	<b>Receipt No.:.....</b>	<b>Date:.....</b>
1.	Name of work:	Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)
2.	NIT No.:	<b>13/EE/CED-II/CCU/2024-25</b>
3.	Estimated cost:	Rs. 94,24,009/- (Civil: Rs.56,06,538/- +Elect.: Rs. 38,17,471/-)
4.	Amount of Earnest Money Deposit:	Rs. 1,88,480/-
5.	Last date of submission of bid:	16.10.2024
<b>(*To be filled by EE at the time of issue of NIT and uploaded alongwith NIT)</b>		
1.	Name of contractor:	.....#.....
2.	Form of EMD:	.....#.....
3.	Amount of Earnest Money Deposit:	.....#.....
4.	Date of submission of EMD:	.....#.....
	Signature, Name and designation of EMD receiving officer (EE/ AE(P)/ AE/ AAO) alongwith office stamp	
<b>(#To be filled by EMD receiving EE)</b>		

Note:

- i) The Executive Engineer receiving EMD in original form shall examine the EMD deposited by the bidder and shall issue a receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting EE. The receipt may be issued by the EE/AE(P)/AE/AAO.
- ii) The Executive Engineer receiving original EMD shall also intimate tender inviting Executive Engineer about deposition of EMD by the agency by email ([eeecd2ccu-mef@gov.in](mailto:eeecd2ccu-mef@gov.in)).
- iii) The original EMD receiving Executive Engineer shall release the EMD after verification from the e- tendering portal website ([www.tenderwizard.com](http://www.tenderwizard.com)>tenderfree view> advance search>awarded tenders) that the particular contractor is not L-1 tenderer and work is awarded.
- iv) The tender inviting Executive Engineer will call for original EMD of the L-1 tenderer from EMD receiving Executive Engineer immediately after opening the bids.

## CPWD-6 FOR e-TENDERING

- 1 **Percentage rate bids** are invited on behalf of President of India from approved and eligible contractors of CPWD in appropriate class for the work of “**Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)**”.

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

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

The work is estimated to cost **Rs. 94,24,009/- (Civil: Rs.56,06,538/- + Elect.: Rs. 38,17,471/-)**

This estimate, however, is given merely as a rough guide.

The authority competent to approve NIT for the combined cost and belonging to 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 bid.

- 1.1 For composite tender, besides indicating the combined estimated cost put to tender, should clearly indicate the estimated cost of each component separately. The eligibility of tenderer will correspond to the combined estimated cost of different components put to tender.
- 1.2 Online bid documents submitted by intending bidders shall be opened only of those bidders, whose “**EMD Deposition receipt**, Cost of Bid Document and e-tender Processing Fee” and “other documents including eligibility documents as required as per this NIT” are found in order.
- The financial bid of only those agencies shall be opened who are found to be eligible agencies, as per this NIT.
2. Agreement shall be drawn with the successful bidder on prescribed Form No. **CPWD 7** which is available as a Govt. of India Publication. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **45 days** from the date of start as defined in schedule ‘F’ or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. (i) The site for the work is available. ~~The construction work shall be taken up in two phases:~~  
~~Phase-I: In this phase two existing old blocks shall be demolished and the construction of hostel Block-A shall be taken up in the space created for this block.~~  
~~Phase-II: After completion of Hostel Block-A, the occupants of the remaining existing block will be shifted in newly constructed Hostel Block-A. The vacated block shall be demolished and construction of new Hostel Block-B, Lounge-1, Lounge-2, Kitchen block, Staff quarters shall be taken up in Phase-II construction.~~
- (ii) The architectural and structural drawings for the work are available and will be supplied according to progress of the work.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions

of Contract Form can be seen from website <https://etender.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. Details of Earnest Money in the form of Insurance Surety Bond or Treasury Challan or Demand Draft or Pay order or Banker`s Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of **Executive Engineer, CED-II, CCU, MoEF&CC, NewDelhi**) 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/CCU, MoEF&CC within the period of bid submission. (The EMD documents shall only be issued from the place in which the office of receiving division office is situated). The EMD receiving Executive Engineer (including NIT issuing EE) 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.

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

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 scheduled bank having validity for 90 days or more from last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

9. Copy of Enlistment Order and certificate of work experience and other documents as specified in the bid document shall be scanned and uploaded to the e-tendering website within the period of bid submission. **However, certified copy of all the scanned and uploaded documents as specified in the bid document shall have to be submitted by the lowest bidder physically in the office of tender opening authority as and when directed by Engineer-in-charge.**

Online bid documents submitted by intending bidders shall be opened only of those bidders, whose all documents scanned and uploaded are found in order.

The financial bid submitted shall be opened at **03:30 PM on 16.10.2024.**

10. The bid submitted shall be come invalid and e-tender processing fee shall not be refunded if:
  - (i) The bidder is found in eligible.
  - (ii) **The bidder does not deposit original EMD with division office of any Executive Engineer, CPWD/CCU, MoEF&CC.**
  - (iii) The bidder does not upload all documents (**including GST registration/ undertaking**) as stipulated in the bid document.
  - (iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of tender opening authority.

- (v) 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 tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
11. The contractor whose bid is accepted will be required to furnish performance guarantee of 5% (Five Percent) of the accepted tendered amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10,000/-) or Insurance Surety Bond or Deposit at Call receipt of any scheduled bank/Banker's cheque of any scheduled **certificate signed & uploaded** bank/ Demand Draft of any scheduled bank/ Pay order of any Scheduled Bank of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the 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, **then the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.** The contractor whose bid is accepted, will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board and Programme Chart (Time and Progress) within the period specified in Schedule-F.
12. 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, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other Services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
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 condition all 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 to rejection.
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 bidder shall be bound to perform the same at the rate quoted.

16. **GST or any other tax applicable in respect of inputs procured by the contractor for this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same.**
17. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/ Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are nearrelatives to any gazette officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
18. No Engineer of gazette rank or other gazette officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous 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 ofthe Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. The bid for the works shall remain open for acceptance for a period of a period of **thirty (30) days** from the date of opening of bids. If any bidder withdraws his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidder shall not be allowed to participate in there bidding process of the 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** or other Standard C.P.W.D. Form as mentioned.
- 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 including schedule A to F for **major and minor component** of the work, Standard General Conditions of Contract for **CPWD 2020 for construction work** as amended/ modified upto 19.05.2023.

Part B: Additional Conditions, Special Conditions & Particular Specifications applicable to **major component** of the work.

Part C: Additional Conditions for electrical work applicable to **minor component** of the work.

- 20.1.3 The bidders must associate with himself, agencies of the appropriate class eligible to bid for each of the minor component individually. The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.
- 20.1.4 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 in-charge of minor components. One such signed set of agreement shall be handed over to EE in-charge of minor component. EE of major component will operate Part-A and Part-B of the agreement. EE in-charge of minor component(s) shall operate Part-C alongwith Part-A of the agreement.
- 20.1.5 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.
- 20.1.6 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works. The Earnest Money will become part of the security deposit of the major components of work.
- 20.1.7 The main contractor has to associate agency(s) for minor component(s) conforming to eligibility criteria as defined in the tender document and has to submit detail of such agency(s) to Engineer-in-charge of minor component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-charge of minor component(s).
- 20.1.8 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge of minor component. The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.
- 20.1.9 The main contractor has to enter into agreement with the contractor(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to EE/DDH in charge of each minor component as well as to EE in-charge of major component. In case of change of associate contractor, the main contractor has to enter into agreement with the new contractor associated by him.
- 20.1.10 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.

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

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

**Signature of the Divisional Officer,  
For and on behalf of the President  
of India.**



**GOVERNMENT OF INDIA  
CENTRAL PUBLIC WORKS DEPARTMENT**

<b>State:</b>	<b>Uttarakhand</b>	<b>Circle</b>	<b>SE,CCU, MoEF&amp;CC</b>
<b>Branch:</b>	<b>B&amp;R</b>	<b>Division</b>	<b>CED-II, CCU</b>
<b>Zone:</b>	<b>CE, CCU, MoEF&amp;CC</b>		

**PERCENTAGE RATE BID AND CONTRACT FOR WORKS**

**Name of Work: Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)**

- i) The bid to be submitted online by **3 PM on 16.10.2024**
- ii) The online Bid shall be opened in presence of tenderers who may be present **at 3.30 PM on 16.10.2024** in the office of the **Executive Engineer, CED-II, CCU, MoEF&C, Dehradun.**

\*\* to be filled by the Executive Engineer, CED-II, CCU

**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 respects with the specifications, designs, drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

We agree to keep the tender **open for** a period of **thirty (30)** days from the date of opening of bids and not to make any modifications in its terms and conditions.

A sum of **Rs. 1,88,480/-** (EMD) is hereby forwarded in Insurance Surety Bond/Receipt Treasury Challan/ Deposit at call Receipt of a Scheduled Bank/Fixed deposit receipt of scheduled bank/ demand draft of a scheduled bank/ bank guarantee issued by scheduled bank as earnest money. If I/we, fail to furnish the prescribed performance guarantee or fail to commence the work 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 of commence work as specified, I/We agree that President of India or his successors in offices shall without prejudice to any other right or remedy available in- law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise they said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the

terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in Schedule 'F' and 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 performance guarantee as aforesaid, I/We shall be debarred for participation in there-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 tenderingin 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 Performance Guarantee.

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

Dated:

Signature of Contractor Postal Address

Witness:

Address:

Occupation:

**ACCEPTANCE**

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

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

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

For & on behalf of the President of India

Dated \_\_\_\_\_

Signature \_\_\_\_\_

Designation \_\_\_\_\_

## SCHEDULE 'F'

### SCHEDULE 'A'

Schedule of quantities: For Civil work (As per attached sheet)

### SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

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

### SCHEDULE 'C'

Tools and plants to be hired to the contractor

S.No.	Description	Hire charges	Place of issue Per day
(1)	(2)	(3)	(4)
----Nil----			

### SCHEDULE 'D'

Extra schedule for specific requirements/ documents for the work, if any.

#### Civil work:

- 1 Additional conditions and special conditions.
- 2 Particular specification and list of Preferred makes of materials.
- 3 Annexures (Guarantee Bonds) As per NIT.

### SCHEDULE 'E'

<b>Reference to General Conditions of Contract</b>	General Conditions of Contract 2020 for Construction Works in CPWD as amended /modified upto 19.05.2023
----------------------------------------------------	---------------------------------------------------------------------------------------------------------

**Name of Work: "Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)**

1.1 ".

1.2 Estimated Cost of work:- Rs. 56,06,538/- (Civil Work)  
Rs. 38,17,471/- (Electrical work)  
**Rs. 94,24,009/- (Total)**

1.3 Earnest Money:- **Rs. 1,88,480/-**

1.4 Performance Guarantee 5% of tendered amount

1.5 Security Deposit **2.5%of the tendered value**

**SCHEDULE 'F':-****General Rules & Directions:-**

	Officer Inviting Tender	<b>Executive Engineer, CED-II, CCU, MoEF&amp;CC, PO- New Forest, FRI Campus, Dehradun-248006</b>
	<b>Definitions:-</b>	
2(i)	(i) Engineer-In-Charge (for civil work) (ii) Engineer-In-Charge (for Elect. work)	<b>Executive Engineer, CED-II, CCU, MoEF&amp;CC, or his successor Executive Engineer(E), CCU, MoEF&amp;CC, New Delhi or his successor</b>
2(ii)	Accepting Authority	Executive Engineer, CED-II, CCU, MoEF&CC or his successor
2(iii)	Percentage on cost of materials and Labour to cover all overheads and profits	15%
	Standard Schedule of Rates (civil & electrical)	Delhi Schedule of Rates 2021(Civil) & Delhi Schedule of Rates 2022 (E&M) with upto date correction slips upto 19.05.2023
2(v)	Department	Civil Construction Unit, MoEF&CC
2(vi)	Standard CPWD Contract (Civil & electrical)	CPWD Form 7 modified and Amended up-to 19.05.2023

(i)	Time allowed for submission of performance guarantee, Programme Chart (Time and progress) and applicable Labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including provident fund Code No. or proof of applying thereof from the date of letter of acceptance.	<b>07 days</b>
(ii)	Maximum allowable extension with late fee @ <b>0.1% per day</b> of performance guarantee amount beyond the period as provided in (i) above	<b>03 days</b>
	Authority for fixing compensation under clause-2.	Superintending Engineer, CCU, MoEF&CC
(i)	Number of days from the date of issue of letter of acceptance for reckoning date of start.	<b>07 days</b>
(ii)	Milestone.	Table of Milestones as mentioned in NIT
(iii)	Time allowed for execution of work	<b>45 days</b>

<b>Authority to decide.</b>		
(i)	Extension of time for completion of work.	: Executive Engineer, CED-II, CCU, MoEF&CC
(ii)	Re-scheduling of Milestone	: Executive Engineer, CED-II, CCU, MoEF&CC
(iii)	Shifting of date of start in case of delay in handing over of site.	: Executive Engineer, CED-II, CCU, MoEF&CC
<p><b>Note:</b> Date of completion for civil as well as electrical items of work will be same. Levy of compensation under Clause 2 as well as fair and reasonable extension of time will be granted by the Superintending Engineer, CCU, MoEF&amp;CC thereof in consultation with and on receipt of required information in this regard from <b>Executive Engineer, CED-II, CCU, MoEF&amp;CC, Dehradun</b> for Civil works and <b>Executive Engineer (E), CCU, New Delhi</b> for Electrical work.</p>		
Clause-5.1	Rate of recovery for delay in submission of the Time and Progress Chart and Progress Report	<b>Rs. 500 per day</b>
Clause-5.4	Rate of recovery for delay in submission of the modified programme in terms of delay days:	<b>Rs. 500 per day</b>
<b>Clause- 6</b>	Clause applicable- 6 or 6A	<b>6A, Applicable</b>
<b>Clause- 7</b>	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.	<b>(i) Rs.37.38 lakh (Civil) (ii) Rs.25.45 lakh (Elect.)</b>
<b>Clause-7A</b>	Regarding applicability of labour laws:-Related to Labour license, registration of contractor with EPFO, ESIC and BOCW welfare board i/c Provident Fund	<b>Yes Applicable</b>
	No running account bill shall be paid in the work till the applicable labour licenses, registration with EPFO, ESIC, BOCW welfare board including Provident Fund Code No. whatever applicable are submitted by the contractor to the Engineer-in-charge.	

<b>Clause-10A:</b>	<b>List of testing equipment to be provided by the contractor at site lab.</b> (i) Electronic/ digital weighing balance (1 No.): (a) 7 kg to10 kg capacity, semi-self indicating type-Accuracy 10gm. (b) 500 gm capacity, semi-self indicating type-Accuracy 1gm. (ii) Cube Testing Machine (1 No.) alongwith minimum 18 Nos. cube moulds (iii) Sieves set for fine & coarse aggregate and road materials as per IS 460-1962 & sieve shaker (1 No.) (iv) Slump Cone (1 No.) (v) Oven (1 No.)- Electrically operated, thermostatically controlled up to 1100C- Sensitivity 10C (vi) Graduated Measuring Cylinder (1 No.) (vii) Enamel trays (for efflorescence test for bricks) – 1 No. (viii) Ultrasonic Pulse Velocity Test Equipment For concrete (1 No.) (ix) Measuring Steel Tape 3m (2 Nos.) & 15m (2 Nos.) and Laser Distance Meter of 200 metre range with Bluetooth connectivity– 1 No. (x) Soil density testing equipment's. (xi) Levelling machine with staff. (xii) Total station machine. (xiii) Other instruments (2 Nos. each): Vernier calipers, screw gauge, plumb bob, spirit level minimum 30 cm long with 3 bubbles, wire gauge (Circular type) disc, steel foot rule, long nylon thread, magnifying glass, moisture meter. (xiv) Rebound hammer (01 No.)	
<b>Clause-10-B(i)</b>	Whether clause applicable.	<b>Applicable</b>
<b>Clause-10-B(ii)</b>	Whether clause applicable.	<b>Not Applicable</b>
<b>Clause-10C:-</b>	Component of labour expressed as percentage of value of work.	<b>Not Applicable</b>

**Clause-10-CA:-** Whether clause10CA to be applicable : **Not applicable**

<b>Clause-10-CC:-</b> Clause10CC to be applicable In contracts with stipulated period of completion <b>exceeding 12 months.</b>	<b>Yes, Applicable (For both Civil and Electrical Component ofWorks)</b>
Schedule of component of other materials, labour POL etc. for price escalation:-	
Component of Materials of Civil work construction value of civil work	Xm=75%
Component of Labour expressed as %age of total value of Civil work	Y=25%
Component of Materials of Electrical work construction value of electrical work	Xm=85%
Component of Labour expressed as %age of total value of Electrical work	Y=15%
Component of POL expressed as %age of total Value of Civil work	Nil

**Clause-11:-**(i) Specifications to be followed for Execution of-

**Civil Work:**

C.P.W.D. Specifications 2019 Vol. I & II execution of work with upto date correction slips (Hereinafter called CPWD specification) and as per manufacture specification i/c special conditions & particular specifications & MORTH specification shall be followed.

**Electrical work:**

CPWD General Specification for Electrical Works (Part-I Internal)-2013.  
CPWD General Specification for Electrical Works (Part-II External)-1995  
CPWD General Specification for Electrical Works Part-III LIFT & ESCALATORS-2003.  
CPWD General Specification for Electrical Works Part-IV Substation-2013.  
CPWD General Specification for Electrical Works Part-V Wet riser & sprinkler system-2020.  
CPWD General Specifications for Electrical Works Part-VI Fire Detection and Alarm System –2018.  
CPWD General Specification for Electrical Works Part-VII DG Sets-2013.  
CPWD General Specification for Electrical Works Part-VIII Gas Based Fire Extinguishing System-2013.

**Clause-12:-** Type of work **Original work (Building Work)**

12.2 &12.3	Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work in super structure	100%
12.5 (i)	Deviation limit beyond which Clause 12.2&12.3 shall apply for Foundation work	100%

**Clause-16:-** Competent Authority for deciding reduced rates Superindending Engineer, CCU, MoEF&CC or his successor-in-charge.



**Clause18 LIST OF MACHINERY, TOOLS & PLANTS TO BE DEPLOYED BY THE CONTRACTOR AT SITE AS & WHEN REQUIRED**

<b>Sl. No.</b>	<b>Name of Equipment</b>		<b>Numbers</b>
	<b>Civil</b>		
1	Excavators (various sizes) cum loader		As required
2	Computerised Automatic concrete batching plant of sufficient capacity as per direction of Engineer-in-charge		As required
3	Concrete pump (Desirable)		As required
4	Concrete transit mixer		As required
5	Concrete mixer (diesel)		As required
6	Concrete mixer (electrical)		As required
7	Needle vibrator (electrical)		As required
8	Needle vibrator (petrol)		As required
9	Surface vibrator		As required
10	Bar bending Machine		As required
11	Bar cutting machine		As required
12	Welding machine i/c transformer		As required
13	Fully automatic cube testing machines		As required
14	Adjustable steel props		As required
15	Steel shuttering	For 2000 sqm equivalent area or as desired by Engineer-in-charge.	As required
16	Steel scaffolding		
17	Grinding/polishing machines		As required
18	Tippers		As required
19	Air compressors(diesel)		As required
20	Dewatering Pump(diesel)		As required
21	Diesel generator of appropriate capacity		As required
22	Core cutting machine		As required
23	Stone Cutting Machine		As required
24	Tile Cutting Machine		As required

1. Workshop facilities for fabrication/addition and alterations, and other allied works shall be arranged by the contractor at his own cost.
2. The list of equipment/ T&P/machinery as per above is for general guidance. In addition to these, machinery / equipment as required shall be arranged by the contractor in case the requirement at any stage exceeds as per the programme finalized at his own cost and nothing extra whatsoever on this account shall be paid. This includes equipment for arrangement of concrete from RMC producing plants also.
3. All the equipment, T & P and machinery shall be kept in good working conditions.
4. Equipment like batching plant, concrete pump excavators/ Transit mixer etc. shall be allowed to be moved away from the site when, the same are no longer required at site of work in the opinion of Engineer-in-charge.

**Clause19** Competent Authority to decide penalty for each default–

Clause19C	Rs. 400 for each default
Clause19D	Rs. 2500 for each default
Clause19G	Rs. 400 for each default
	Rs. 500 for each default (for enhanced penalty in case of continuous default)
Clause19K	Rs. 500 for each default

**Clause25:**

Conciliation and Arbitration	
Conciliator:	: SE, CCU, or his legal successor or Assignee thereof
Arbitrator Appointing Authority	: CE, CCU, MoEF&CC
The Executive Engineer, CED-II, CCU will present the case.	
Place of Arbitration	: Delhi

**Note:** No party shall be represented before the Conciliator by an Advocate/ legal council etc.

**CLAUSE32**

Requirement of Technical Representative(s) and Recovery Rate

Cost of work (Rs. In crore)	Requirement of Technical staff		Minimum Experience (Years)	Designation	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause36 (i)
	Qualification	Number			
More Than Rs. 20 Or to Rs. 50 crore	(of Civil + Electrical Component)				
	Graduate Engineer	4	20 (and having Experience of One similar Nature of work)	Project Manager	Rs.60,000/- Per month
	Graduate Engineer	4	12 (and having Experience of One similar Nature of work)	Deputy Project Manager	Rs.40,000/- Per month Per person
	Graduate Engineer Or Diploma Engineer	1+1	5 Or 10 Respectively	Project/ Site Engineer	Rs.25,000/- Per Month Per person
	Graduate Engineer Or Diploma Engineer	1+1	2 Or 5 Respectively	Project/ Planning/ quality/ Billing- Engineer	Rs.15,000/- Per month Per person
More than 15 lakh to 1.5 crore	Graduate Engineer Or Diploma Engineer	1 of major component	2 or 5 years respectively	Project Manager cum planning/quality/site / billing Engineer	15000 per month per person

Note:

- 1) The specialized technical staff for execution for component such as plumbing, water proofing, fire fighting, Automatic fire alarm, DG set, Substation, Acoustic, landscaping etc. shall be deployed as per the requirement of work.
- 2) Assistant Engineers retired from Government services who are holding Diploma will be treated at par with Graduate Engineers.
- 3) Diploma holder with minimum 10-years relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to that such diploma holder should not exceed 50% of requirement of degree engineers.
- 4) The bidder shall submit a certificate of employment of the technical representative(s) (in the form of copy of Form – 16 or CPF deduction issued to the Engineers employed by him) along with every account bill / final bill and shall produce evidence of regular physical availability of such engineers on the above project whenever required by the Engineer – in – charge

**Clause-38:-**

- |                                                       |                                                                                                                     |                                                                            |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| i)                                                    | Schedule/Statement for determining Theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates | <b>As per Delhi Schedule of Rates 2021 with amendments upto 19.05.2023</b> |
| ii) Variations permissible on theoretical quantities. |                                                                                                                     |                                                                            |
| a)                                                    | Cement for works with estimated cost put to tender is more than `25 Lacs.                                           | 2% plus/minus.                                                             |
| b)                                                    | Bitumen all works                                                                                                   | 2.5% plus only & nil on minus side.                                        |
| c)                                                    | Steel reinforcement and structural steel section for diameter, section and category.                                | 2% plus/minus.                                                             |
| d)                                                    | All other materials.                                                                                                | Nil.                                                                       |

**RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION**

S. No.	Description of item	Rates in figures and words at which recovery shall be made from the contractor	
		Excess beyond Permissible Variation	Less use from the permissible variation
1.	PPC Cement	NIL	<b>110% of base price considered for the operation of clause 10CA.</b>
2.	Steel reinforcement (TMT)	NIL	
3.	Structural Steel sections	NIL	

## TABLE OF MILESTONE(S)

**Name of work: Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)**

**Milestone/Bar Chart(s)-** As per construction programme given below

**Note:-**In the event of not achieving the necessary progress as assessed from milestone chart, 1.25% of the accepted tendered value of work will be withheld for failure of each milestone.

### Milestones of the Contract (CIVIL)

Sl. No.	Description of milestone	Period for completion from date of start in days / months	Withheld amount for non-achievement of milestone.
1	35% of the contract value	15 days	1.50% of the accepted tendered value.
2	70% of the contract	30 days	3%of the accepted tendered value.
3	Completion and handing over	45 days	5% of the accepted tendered value.

The withheld amount due to non-achievement of milestone may be released if the subsequent milestone is achieved in the specified time.

Mile stones shall be applicable both for **Major Component (Civil Work)** as well as for **Minor Component (Electrical Work)** of the work as attached. The main contractor will ensure that electrical components of the work are executed in time without giving any chance for slippages of milestones on account of delay in execution of associated electrical work by him. However, incase milestones are not achieved by the contractor forthe work, the amount shown against milestone shall be withheld by the Executive Engineer in-charge of the major component.

**Note:** Intending tenderer may submit physical activities/ milestones on the basis of their resources and methodology at the time of tendering corresponding to physical milestones/ stages as indicated in the above table. These shall be formed part of agreement after approval of the accepting authority, otherwise it would be assumed that agency agrees with the above mentioned physical milestones

# PART-B

## CONDITIONS AND SPECIFICATIONS OF MAJOR COMPONENT

### **ADDITIONAL CONDITIONS**

- 1) Several documents forming the tender are to be taken as mutually complementary to one another.
- 2) 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) for civil works with upto date correction slips (hereinafter to be collectively referred to as 'CPWD Specifications'). Wherever CPWD Specifications are silent, then the latest BIS Codes/Specifications, National Building Code 2016, MoRTH specification or any other specification shall be followed.
- 3) The order of preference in case of any discrepancy as indicated in condition No. 8.1 under "Conditions of Contract" given in standard CPWD Contract form may be read as the following:
  - (i) **Nomenclature of items as per Schedule of Quantities**
  - (ii) **General, Special Conditions and Particular Specifications as provided forming part of tender document.**
  - (iii) **CPWD Specifications with up-to-date Correction slips**
  - (iv) **Architectural/Structural drawings**
  - (v) **Indian Standard Specifications of BIS**
  - (vi) **National Building Code - 2016**
  - (vii) **Manufacturer's specifications.**
  - (viii) **Sound Engineering Practices**
  - (ix) **Decision of Engineer-in-charge**

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

- 4) The proposed building work is a prestigious project and quality of work is of paramount importance. Contractor shall have to engage well experienced skilled labour and deploy modern T&P and other equipment to execute the work. Many items like stone masonry & stone cladding work, stone flooring, flooring work, wood work, precast RCC coffers, polysulphide / silicone sealant & other specialized works will specifically require engagement of skilled workers having experience particularly in execution of such items.
- 5) The tenderer shall acquaint himself with the proposed site of work, its approach roads, working space available etc. before quoting his rates and no claim on this account shall be entertained by the department.
- 6) The contractor(s) shall get himself acquainted with nature and extent of the work and satisfy himself about the availability of materials from kiln or approved quarries for collection and conveyance of materials required for construction.
- 7) The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost. No payment shall be made on this account and the quoted rates shall be deemed to be inclusive of all such activities.
- 8) ***The building work shall be carried out in the manner complying in all respects with the requirements of the relevant bylaws and regulations of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-charge and nothing extra shall be paid on this account.***

- 9) **The contractor(s) shall inform/issue notices to the Municipality, police and other authorities that may be required as per law and obtain all requisite permission/ licenses for temporary obstructions, enclosures etc. Contractor(s) shall pay all fee, taxes and charges which may be leviable on account of these operations in executing the contract. He shall make good any damage to the property whether public or private and shall supply and maintain lights either for illumination or for cautioning the public at night at his own cost. Nothing, whatsoever, extra shall be admissible on this account over and above the tendered rates.**
- 10) The contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties and any pollution of smoke, streams and water-ways. He shall make good at his cost and to the satisfaction of the Engineer-in-Charge, any damage to roads, paths, cross drainage works or public or private property whatsoever caused thereon by the contractor. All waste or superfluous materials shall be carried away by the contractor without any reservation entirely to the satisfaction of the Engineer-in-Charge.
- 11) Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of building/adjacent properties.
- 12) The works shall be carried out in accordance with the Architectural drawings and structural drawings, to be issued from time to time by the Engineer-in-Charge or as mentioned in detailed program chart submitted by the contractor after award of work. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work and satisfy himself that the information available thereof is complete and unambiguous. The discrepancy, if any shall be brought to the notice of the Engineer-in-Charge before execution of the work. The contractor alone shall be responsible for any loss or damage executing by the commencement of work on the basis of any erroneous and or incomplete information.
- 13) The Architectural drawings given in the tender, if any, other than those indicated in nomenclature of items are only indicative of the nature of the work and materials/fixings involved unless and otherwise specifically mentioned. However, the work shall be executed in accordance with the drawings duly approved by the Engineer-in-Charge.
- 14) Other specialized agencies will also simultaneously execute and install the works of sub-station / generating sets, air-conditioning, lifts, etc. for the work and the contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes, openings trenches etc. as may be required for such related works for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall also be fixed at time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.
- 15) The contractor shall conduct work so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in-Charge and shall as far as possible arrange his work and shall place and dispose of the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.
- 16) Some restrictions may be imposed by the security agencies /client on the working and on movement of labour, materials etc in the campus/site and may require to issue identity cards to all persons authorized by contractor to do work / visit the work site. **The contractor shall be bound to follow all such restrictions / instructions and no claim whatsoever shall on this**

- account will be entertained. The loss of time on this account, if any, shall have to be made up by generating additional resources etc. at no extra cost.*
- 17) The rates quoted by the contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark, spot levels, construction of all safety and protection devices, barriers, earth embankments, preparatory works, all testing of materials, working during monsoon, working at all depths, height and locations etc. unless specified in the schedule of quantities.**
  - 18) Royalty at the prevailing rates wherever payable shall have to be paid by the contractor on the boulders, metal, shingle, sand, local earth/soil and bajri etc. or any other material collected by him for the work direct to revenue authorities and nothing extra shall be paid by the department for the same.**
  - 19) *Permission for the Excavation of the Basement and/or any Mining Approval along with carriage and disposal of surplus excavated earth shall be obtained by the contractor at his own expenses from Local Administration / Revenue Authority. Department / Client Department shall only forward the case to the concerned Authority. Moreover, all the fee including royalty for surplus excavated earth is to be paid by the contractor to the concerned department. Nothing extra shall be paid on account of this to the contractor.*
  - 20) *No payment shall be made for any damage caused by rain, snowfall, flood or any other natural calamity, whatsoever during the execution of the work. The contractor shall be fully responsible for any damage to the govt. property and work for which the payment has been advanced to him under the contract and he shall make good the same at his risk and cost. The contractor shall be fully responsible for safety and security of his material, T&P, Machinery brought to the site by him.*
  - 21) The contractor shall deploy adequate resources e.g. manpower, labour, T&P, Plant & Equipment etc. as per actual requirement of work. No damages/compensation shall be payable on account of idle manpower, labour, T&P, Plant and Equipment and loss of profit etc. for whatsoever reason.**
  - 22) *The rates for all items of work shall, unless clearly specified otherwise, include cost of all labour, material, tools and plants and other inputs including all heights/depths, leads and carriages involved in the execution of the item.*
  - 23) The contractor (s) shall quote all-inclusive rates including all applicable taxes against the items in the schedule of quantities and nothing extra shall be payable for any of the conditions and specifications mentioned in the tender documents unless specifically specified otherwise.**
  - 24) The rates for all items shall be considered as inclusive of pumping/baling out water, if necessary, for which no extra payment shall be made. Those conditions shall be considered to include water from any source such as inflow of flood, rain water, surface drainage, sewerage or due to any other reason including surface and sub-soil water etc. and shall apply to the execution in any season.**
  - 25) The contractor(s) shall study the soil investigation report (indicative only) for the site, available in the office of the Engineer-in-charge and satisfy himself about complete characteristics of soil and other parameters at site. However, no claim on the alleged inadequacy or incorrectness of the soil data supplied by the department shall be entertained.**
  - 26) *The work shall be executed and measured as per metric dimensions given in the Schedule of quantities, drawings etc. (FPS units wherever indicated are for guidance only).*
  - 27) Unless otherwise specified in the schedule of quantities, the rates tendered by the**



***contractor shall be inclusive of all costs & taxes and shall apply to all leads, lifts, depth and height and nothing extra shall be payable on this account.***

- 28) No foreign exchange shall be made available by the Department for importing (purchase) of equipment, plants, machinery, materials of any kind or any other items required to be carried out during execution of the work. No delay and no claim of any kind shall be entertained from the Contractor, on account of variation in the foreign exchange rate.
- 29) All ancillary and incidental facilities required for execution of work like labour camp, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary structure for plants and machineries, temporary barricading or fencing around the working sites, water storage tanks, installation and consumption charges of temporary electricity, telephone, water etc. required for execution of the work, protection works, testing facilities / laboratory at site of work, facilities for all field tests and for taking samples etc. during execution or any other activity which is necessary (for execution of work and as directed by Engineer-in-Charge), shall be deemed to be included in rates quoted by the Contractor. ***Nothing extra shall be payable on these accounts.***
- 30) ***Before start of the work, the Contractor shall submit to the Engineer-in-Charge, a site / construction yard layout, specifying areas for construction, site office, positioning of machinery, material yard, cement & other storage, fabrication yard, site laboratory, water tank etc. for approval.***
- 31) For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). Normally contractors shall not be allowed to execute the RCC, electrical and finishing work at night. Work at night shall, however, be allowed if the site conditions/circumstances so demand. No claim whatsoever shall be entertained on this account, notwithstanding the fact that the contractor may have to pay extra amounts for any reason, to the labours and other staff engaged directly or indirectly on the work according to the provisions of the labour Act and other statutory bodies regulations and the agreement entered upon by the contractor with them.
- 32) The contractor shall maintain in perfect condition, all portions executed till completion of the entire work allotted to him. Where however phased delivery of work is contemplated these provisions shall apply separately to each phase.
- 33) All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.
- 34) The contractor(s) shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed. The stacking shall take place as per stacking plan however, if any change is required, the same shall be done with the approval of Engineer-in-Charge.
- 35) **The Contractor shall bear all incidental charges for all type of cartage/carriage upto execution site, storage and safe custody of materials issued by department/arranged by the contractor.**
- 36) The terms machine batched, machine mixed and machine vibrated concrete used elsewhere in agreement shall mean the concrete produced in concrete batching and mixing plant and if necessary, transported by transit concrete mixers, placed in position by the concrete pumps,

tower crane and vibrated by surface vibrator /needle vibrator / plate vibrator, as the case may be to achieve required strength and durability.

- 37) The cost of flooring is inclusive of providing sunken flooring in bath-rooms, kitchen, etc. and nothing extra on this account shall be payable.**
- 38) Any legal or financial implications resulting out of carriage of earth from outside or disposal of earth shall be sole responsibility of the contractor. Nothing extra shall be paid on this account.**
- 39) No chase cutting/dismantling of plaster/RCC/CC shall be allowed, so contractor has to execute the electrical work accordingly. The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors are minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously while raising the brick work. The contractor shall ensure proper coordination of various disciplines viz. sanitary & water supply, electrical, fire- fighting and any other services.
- 40) The work of water supply, internal sanitary installations and drainage, firefighting etc. shall be carried out as per the bylaws of the Municipal Corporation or any other local body and the contractor shall produce necessary completion certificates from such authority after completion of work.**
- 41) In case of local Municipal regulations / restrictions by client /non-availability space at site if huts for labours are not allowed to be erected at the site of work, the contractor shall be required to provide such accommodation at suitable place at his own cost and nothing extra shall be paid on this account.**
- 42) Any cement slurry added over base surface for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable and no extra cement considered in consumption on this account.**
- 43) Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar service encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense.** In case the same are to be removed and diverted. The same shall be payable to the contractor. The contractor shall work out the cost and the same shall be approved by Engineer-in-Charge. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.
- 44) The contractor shall be responsible for the watch and ward / guard of the buildings safety, fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.**

#### **45) SETTING OUT**

- (i) Contractor shall provide permanent bench marks and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings and direction of Engineering-in-Charge.
- (ii) The contractor shall establish, maintain and assume responsibility for grades, lines, levels and bench marks. He shall report any errors or inconsistencies regarding grades, lines, levels, dimensions to the Engineer-in-Charge before commencing work. Commencement

of work shall be regarded as the contractor's acceptance of such grades, lines, levels and dimensions and no claim shall be entertained at a later date for any errors found.

- (iii) ***If at any time, any error in this respect shall appear during the progress of the work, the contractor shall, at his own expense rectify such error if so required to the satisfaction of the Engineer-in-Charge. Nothing extra shall be payable on this account.***
- (iv) Though the site levels may be indicated in the drawings the contractor shall ascertain himself and confirm the site levels with respect to GTS bench mark from the concerned authorities.
- (v) The approval by the Engineer-in-Charge of the setting out by the contractor shall not relieve the contractor of any of his responsibilities.
- (vi) The contractor shall be entirely and exclusively responsible for the horizontal, vertical and other alignment, the level and correctness of every part of the work and shall rectify effectively any errors or imperfections therein. Such rectifications shall be carried out by the contractor at his own cost to the instructions and satisfaction of the Engineer-in-Charge.

#### **46) PROGRAMME CHART**

- (i) The Contractor shall prepare an integrated programme chart in MS Project/Primavera software for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the programme within the stipulated period or earlier and submit the same for approval to the Engineer-in-Charge within **seven** days of award of the contract. Non-submission of such programme shall attract the recoveries as mentioned in the Schedule-F of the tender document.
- (ii) The programme chart should include the following:
  - (a) Descriptive note explaining sequence of the various activities.
  - (b) Network (PERT/CPM/BAR CHART) in MS Project/Primavera Software
  - (c) Programme for procurement of materials by the contractor.
  - (d) Programme of procurement of machinery / equipment having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.
- (iii) In addition to above, the contractor shall submit shuttering schedule adequate to complete structure work within laid down physical milestone etc. and to achieve the progress of work as per programme, he must bring sufficient shuttering material required for cement concrete and R.C.C. works etc.
- (iv) If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved programme referred above, the contractor shall produce a revised programme showing the modifications to the approved programme to ensure completion of the work. The modified schedule of programme shall be approved by the Engineer-in-Charge. Non-submission of such revised programme shall attract the recoveries as mentioned in the Schedule-F of the tender document. For Periodic inspections of the local body and on completion of works, the Contractor shall procure approvals and local body completion certificates.
- (v) The submission for approval by the Engineer-in-Charge of such programme or the furnishing of such particulars shall not relieve the contractor of any of the duties or

responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

#### 47) PROGRESS REPORT

The contractor shall submit the Time and Progress Chart and progress report using the mutually agreed software or in other format decided by Engineer-in-Charge for the work done during previous month to the Engineer-in-charge on or before 5th day of each month failing which a recovery as per Schedule F shall be made on per week or part basis in case of delay in submission of the monthly progress report.

#### 48) SAFETY PRECAUTIONS

- (i) **Contractor shall within two days of award of work, submit to the Engineer-in-Charge for his approval, list of measures for maintaining safety of manpower deployed for construction.**
- (ii) **The contractor(s) shall erect the barricading of Precoated galvanized iron profile sheet with proper structural support of 6-meter height enclosing the full area of constructions as per direction of Engineer-in-charge, and nothing extra will be payable on this account. ~~The construction work is to be carried out in two phases therefore, the under constructed site/building should be separated by minimum 3 meter.~~ The barricading to minimize the disturbance to the occupants of the existing building.**
- (iii) *Entry to the site shall be controlled for proper security of man and materials and to avoid accidents.*
- (iv) Necessary personal protective and safety equipment's such as helmet, safety shoes & harness, gloves etc. shall be provided to the all-site Engineers, Supervisory staff, labour and technical staff of the contractor by the Contractor at his own cost and to be used at site.
- (v) The Contractor(s) shall take all precautions to avoid accidents by exhibiting necessary caution boards, day & night speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused to existing/new work due to negligence on his part. No hindrances shall be caused to traffic during the execution of the work.
- (vi) In case of any accident of labours/ contractual staff's the entire responsibility will rest on the part of the contractor and any compensation under such circumstances if becomes payable the same shall be entirely borne by the contractor and department shall have no role on this account.
- (vii) It shall be ensured by the contractor that no electric live wire is left exposed or unattended to avoid any accidents in this regard.
- (viii) Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machineries and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.
- (ix) For facia work, outer finishing and other RCC works etc. double steel scaffolding having two sets of vertical supports with steel staircase for inspection of works by engineer in charge shall be used. The supports shall be sound and strong, tied together with horizontal piece over which scaffolding planks shall be fixed.

- (x) *The contractor shall have to work in pandemic / epidemic conditions such as **COVID 19** for which he has to make safety arrangement / measures for the workers / staff and for the premises meant for them, as per guidelines issued by Government and directions issued by Engineer-in-charge from time to time and nothing extra shall be paid on this account.*

**49) QUALITY ASSURANCE**

- (i) The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge.
- (ii) The contractor shall get the source of various raw materials namely aggregate, cement, sand, steel, water etc. to be used on the work, approved from the Engineer-in-Charge and trial mixes for controlled concrete shall be done using the approved materials. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost.
- (iii) Similarly, the contractor shall submit brand/make of various materials to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it. Any change will have to be got approved from engineer in charge in adv
- (iv) The contractor shall depute Quality Engineer exclusively for enforcement of quality control. For other staff to be deployed for quality assurance, the contractor may refer to clause 32 underschedule "F".
- (v) The contractor shall ensure quality control measures on different aspects of construction including materials, workmanship and correct construction methodologies to be adopted. He shall have to submit quality assurance programme within two weeks of the award of work. The quality assurance programme should include method statement for various items of work to be executed along with check lists to enforce quality control.
- (vi) Wherever work is specified to be done through specialized agencies, their names shall be got approved well in advance from Engineer in charge. Failure to do so shall not justify delay in execution of work. It is suggested that immediately after award of work, contractor should negotiate with concerned specialist agencies and send their names for approval to Engineer in charge within 03 days of issue of letter of award of work
- (vii) The contractor shall provide at his own cost suitable weighing and measuring arrangements at site for checking the weight / dimensions as may be necessary for execution of work. The sealed samples are to be handed over to the testing lab by contractor in the presence of Junior Engineer/Assistant Engineer-in-Charge of work.
- (viii) ***Samples of various materials required for testing shall be provided free of charges by the contractor.***
- (ix) ***Testing charges to be borne by contractor. 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.***
- (x) The contractor or his authorized representative shall associate in collection, preparation, forwarding and testing of such samples. In case, he or his authorized representative is not present or does not associate him, the results or such tests and consequences thereon shall be binding on the contractor.

- (xi) For certain items, if frequency of tests not mentioned in the CPWD Specifications and then relevant IS code shall be followed and tests shall be carried out as per the frequency specified therein.
- (xii) If any load testing or special testing is to be done for any sample whose strength is doubtful, the cost of the same shall also be borne by the contractor.
- (xiii) Samples of all materials and fittings to be used in the work in respect of brand manufacturer and quality shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approved from Engineer-in-Charge. Wherever brand / quality of material is not specified in the item of work, the contractor shall submit the samples as per approved list of brand names given in the tender document / additional specifications for approval of Engineer-in-charge. For all other items, materials and fittings of ISI Marked shall be used with the approval of Engineer-in-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant specifications or IS codes and use the same only after getting the approval.
- (xiv) To avoid delay, contractor should submit samples as stated above well in advance so as to give timely orders for procurement. If any material, even though approved by Engineer-in-Charge is found defective or not conforming to specifications shall be replaced / removed by the contractor at his own risk & cost.
- (xv) The contractor shall get the source of all other materials, not specified elsewhere in the document, approved from the Engineer-in-Charge. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost. Similarly, the contractor shall submit brand/ make of various materials not specified in the agreement, to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it.
- (xvi) ***The contractor shall get the water tested with regard to its suitability and conforming to the relevant IS Code. The contractor shall obtain written approval from the Engineer-in-Charge before he proceeds by using the same for execution of work. The water testing charges shall be borne by the contractor. If tube well water is not suitable, the contractor shall arrange Municipal water or from any other source at his own cost and nothing extra shall be paid on this account. The water shall be got tested at frequency specified in latest CPWD Specifications / BIS Code.***
- (xvii) The Stone aggregate/stone, sand shall be brought from any quarries subjected to the said materials conforming to CPWD specifications.
- (xviii) The gradation of fine sand to be used in plaster work shall be strictly as per CPWD Specifications 2019, conforming to IS:1542-1977. The plastered surface shall be fairly smooth without any undulation of any kind for applying paint/white wash.
- (xix) ***No concreting shall be done until the mix-design is approved by Engineer-in-charge. In case of change of source or characteristic properties of the ingredients used in the concrete mix- design during the work, a revised concrete mix-design conducted by laboratory established at site shall be submitted by the contractor as per the direction***

**of the Engineer-in-charge. Nothing extra shall be paid on this account. No claim for extra time or delay, whatsoever, on this account shall be entertained.**

- (xx) **The contractor shall submit shop drawings of staging and shuttering arrangement, aluminum work and other work including mock work as desired by Engineer-in-charge for his approval before execution. The contractor shall also submit bar bending schedule for approval of Engineer-in-charge before execution.**
- (xxi) The contractor shall invariably prepare the samples of finishing items i.e. flooring of different types, external & internal finishing i/c colour scheme of paint, tiles in dado, flooring in platforms & staircase, water supply & sanitary fittings and any other item as per direction of Engineer-in-charge. The contractor shall proceed with further finishing items only after getting the samples of these items approved in writing from Engineer-in-charge. Toilets and in case of construction of hostel building, one sample room with toilet complete in all shape for each category, shall be prepared by the contractor and got approved from Engineer-in-charge in writing. The contractor shall be allowed to proceed with further quarters only after getting the sample quarters approved in writing from Engineer-in-charge. No extra claim whatsoever beyond the payments due at agreement rates will be entertained from the contractor on this account.
- (xxii) **The construction joints shall be provided in predetermined locations only as decided by Engineer in charge. The cost of shuttering for these construction joints shall be included in item of Concrete work / RCC work and nothing extra shall be payable on this account to the contractor.**
- (xxiii) Water tanks, taps, sanitary, water supply and drainages pipes, fittings and accessories should conform to the specifications provided in bidding documents. The contractor(s) should engage approved, licensed plumbers for the work and get the materials (fixtures/fittings) tested, by the municipal Body/Corporation authorities, wherever required, at his own cost. The Contractor(s) shall submit for the approval to the Engineer-in-Charge the name of the plumbing agency proposed to be engaged by him.
- (xxiv) All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested as per the design conditions submitted before covering.
- (xxv) **The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.**
- (xxvi) **The agency shall submit all the original GST Bill and way bills of all the materials procured for this work as a proof of the genuinity of the materials.**
- (xxvii) Door/window frames/shutters and other factory-made materials shall be procured from reputed and approved manufacturers or their authorized dealers. Decision of Engineer-in-charge in this regard shall be final and binding.
- (xxviii) **The contractor shall provide documentation of the total sequence of this project by way of photography, slides, audio-video recording etc. nothing extra shall be payable to the contractor on this account.**

#### **51. Testing of Materials:**

- a) **Laboratory at site:** The contractor shall establish a testing lab at site and provide testing

equipment and materials for the field tests mentioned in the list of mandatory tests given in CPWD Specifications 2019 Vol. 1 & 2. **Nothing extra shall be payable to him on this account. The representatives of the department shall be at liberty to inspect the testing facilities at site and conduct testing at random in consultation with Engineer incharge. The contractor shall provide all necessary facilities for the purpose. The laboratory shall be equipped, inter alia, with the equipment detailed in SH: A to F.**

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

**Other Laboratories:** The contractor shall arrange carrying out all tests required under the agreement through the **laboratory approved by CE/CCU as per direction of the Engineer-in-Charge** and **shall bear all charges in connection therewith including charges for testing for all materials.**

#### **52. Maintenance of Site Registers:**

- (i) *All the registers of tests to be carried out at Construction Site or in outside laboratories is maintained by the contractor which is issued to the contractor by Engineer-in-charge*
- (ii) *All the Site Registers including Tests registers for tests to be carried out at construction site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff.*
- (iii) *The various registers to be issued to the contractor are:*
  - Materials at site account register.
  - Cement register.
  - Master test registers.
  - Cube test register.
  - Paint & chemical register
  - Drawing register.
  - Bitumen Register
  - Road Roller Register
- (iv) *All the entries in the registers will be made by the designated engineering staff of the contractor and same should be regularly reviewed by JE/AE/EE.*
- (v) *All samples of materials including cement concrete cubes shall be taken jointly with contractor by JE and out of this at least 50% samples shall be taken in presence of AE in charge. If there is no JE, all samples of materials including cement concrete cubes shall be taken by AE jointly with contractor. All the necessary assistance shall be provided by the contractor. **Cost of sampling & testing are to be borne by the contractor and he shall be responsible for safe custody of samples to be tested at site/ outside laboratory.***
- (vi) *All the tests in field lab at construction site shall be carried out by the Engineering staff deployed by the contractor and shall be 100% witnessed by JE and 50% of tests shall be witnessed by AE –in-Charge. At least 10% of the tests are to be witnessed by the Executive Engineer.*
- (vii) *Submission of copy of all test registers, material at site register along with each alternate running account bill and final bill shall be mandatory. These registers should be duly checked*



by division office.

**a. Ultrasonic Pulse Velocity Method of Test for RCC**

- (i) The underlying principle of assessing the quality of concrete is that comparatively higher velocities are obtained when the quality of concrete in terms of density, homogeneity and uniformity is good. The consistency of the concrete as regards its general quality gets established. In case of poorer quality lower velocities are obtained. If there are cracks, voids or flaws inside the concrete which come in the way of transmission of pulse, lower velocities are obtained.
- (ii) **Velocity criterion for Concrete Quality Grading:** The quality of concrete in terms of uniformity, incidence or absence of internal flaws, cracks and segregation etc. indicative of the level of workmanship employed, can thus be assessed using the guidance given in table below, which have been evolved for characterizing the quality concrete in structure in terms of the ultrasonic pulse velocity.

S. No.	Pulse Velocity by Cross Probing (Km/Sec.)	Concrete Quality Grading
1	Above 4.5	Excellent
2	4.5 to 3.5	Good
3	3.5 to 3.0	Medium
4	Below 3.0	Doubtful

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

- (iii) Pulse velocity method of test of concrete is to be conducted for the work as a routine test. The acceptance criteria as per the above table will be applicable which is as per IS 13311 (part- 1): 1992. From the above “Good” and “Excellent” grading are acceptable and below these gradings the concrete will not be acceptable
- (iv) **5% of the total number of RCC members in each category i.e. beam, column, slab and footing may be tested by UPV test method for establishing quality of concrete. It is suggested that test be conducted on RCC beam near joint with column, on RCC column near joint with beam, on RCC footings and rafts. On RCC rafts a suitable grid can be worked out for determining number of tests. In addition, doubtful areas such as honeycombed locations, locations, where continuous seepage is observed, construction joints and visible loose pockets will also be tested.**
- (v) The test results are to be examined in view of the above acceptance criteria “Good” and “Excellent” and wherever concrete is found with less than required quality as per acceptance criteria, repairs to concrete will be made. Honeycombed areas and loose pockets will be repaired by grouting using Portland Cement Mortar/Polymer Modified Cement Mortar /Epoxy Mortar etc. after chipping loose concrete in appropriate manner. In areas where concrete is found below acceptance criteria and defects are not apparently visible on surface, injecting approved grout in appropriate proportion using epoxy grout /acrylic Polymer modified cements slurry made with shrinkage compensating cement / plain cement slurry etc. will be resorted to for repairs. (refer relevant chapters from CPWD Hand Book on Repairs and Rehabilitation of RCC Buildings). Repair to concrete will be done till satisfactory results are obtained as per the acceptance criteria by retesting of the repaired area. If satisfactory results are not obtained dismantling and relaying of concrete will be done.

**b. Removal of Rejected / Sub-standard Materials:**

The following procedure should be followed in case of removal of rejected/sub-standard

materials from the site of work.

- a) 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.
- b) 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.
- c) 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.

### **53. AS BUILT DRAWINGS:**

On completion of work, the Contractor(s) shall submit at his own cost four prints of "AS BUILT" drawings to the Engineer-in-Charge within 30 days of completion of work. These drawings shall have the following information also.

- (i) Diameters of all soil waste pipes and vertical stacks with location.
- (ii) Ground and invert levels of all drainage pipes together with locations of all manholes and connections, up to outfall.
- (iii) Diameter of all water supply line with locations of control valves, access panels etc.

**Final bill will not be paid and Security Deposit shall not be released until submission of as built drawings as above.**

**Note 1:** The General conditions detailed above are in addition to additional /special conditions as specified elsewhere in tender document.

**Note 2:** Nothing extra shall be paid on the account of these General conditions.

~~54. Two (2) nos. Inspection Vehicles one Toyota Innova hybrid top model and other SUV model both not older than 2023 model along with licensed driver, POL, insurance, repair & maintenance of vehicle for running of average 3000 km per month of each vehicle and shall be provided by the agency for site inspection during the entire stipulated completion including extension if any of the work and nothing extra shall be paid to the agency on this account. In case of failure, recovery @ of Rs 1,50,000/ will be made from running bills for each vehicle.~~

~~55. Two laptop apple brands, with latest features and accessories with extended guarantee for 3 years, as decided by Engineer-in charge to be provided for use on work.~~

56. Unless otherwise provided in the schedule of quantities the rates quoted by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building, working in or under water and/or foul conditions and nothing extra shall be payable to him on this account. Payment for centering, shuttering, however if required to be done for floor-to-floor heights greater than 3.5 m shall be admissible at rates arrived at in accordance with clause-12 of the agreement if not already specified.

57. The contractor shall prepare a sample room for Hostel, each type of quarters, toilets etc. which shall be complete in all respect wall, flooring, water supply, sanitary fittings, electric fittings switches, door and windows and other finishes etc. for approval of the client

department and Engineer-in-charge. The contractor shall take the mass work only after approval of sample quarters/rooms and toilets.

~~58. Dismantling and demolishing of existing temporary/ permanent buildings i/c credit of serviceable material will be done by contractor as per direction of Engineer in-charge. The pre-measurement to be done before start of work and verified by Engineer-in-charge.~~

~~The dismantling and demolishing shall be comprising of the following-~~

- ~~(a) Complete structure of the old buildings having plinth area of 9000Sqm (Approx.) in phases is to be demolished as and when required i/c RCC structure, walls, flooring, doors & windows, ventilators, roofing, plumbing, sanitary, sewerage, cement concrete work, brick work, stone work, wood work, steel work including mud phaska / wooden curries / APP/ support system/ red sand stone, False Ceiling, Flooring, Overhead tanks etc, of all sizes, thickness & height including demolition of services and foundation of the structure up to all depths & height as per direction of the Engineer-in-charge (Blasting prohibited).~~
- ~~(b) All serviceable & non-serviceable material items like door, windows, ventilators, partitions, soft furnishing/ accessories if any "as is where basis" obtained from the demolition shall be property of the contractor (excluding moveable furniture items, solar panel, AC's & computer etc. shall be handed over to client/JE-in-charge) and the agency shall be responsible for the carriage and disposal of the same (Material will not be allowed to dumped within the premise of work).~~
- ~~(c) contractor will demolish the structure in safest manner and he will take all precautions to prevent the surrounding structures/services from any damage.~~
- ~~(d) during dismantling of building all necessary safety precautions have to be taken by agency to avoid any mis-happening. The material shall be disposed off by the contractor with designated C&D Waste recycler Units or nearest municipal dumping ground.~~
- ~~(e) All the machinery, labour for demolishing / disposal work shall be borne by the contractor and nothing extra shall be paid on this account.~~
- ~~(f) The recovery for the above demolition i/c taking out serviceable material shall be made form the bills of the contractor @ Rs. 400 per Sqm which is inclusive of all cost incurred in the demolishing work, T&Ps, manpower, segregation of serviceable/ non-serviceable materials, disposal of same with all lead and lifts etc. Disposal of dismantled building rubbish/malba & dismantled material by manual labour and mechanical means i/c loading, transporting & unloading etc. complete. Plinth area of the building shall be measured for payment. The method of calculation of plinth area shall be as per CPWD Plinth Area (PAR) 2021.~~

## SPECIAL CONDITIONS

### 1. SPECIAL CONDITIONS FOR CEMENT:

- 1.1 The contractor shall procure Portland Pozzolana Cement (PPC) conforming to IS: 1489 (Part-1) / 43 grade ordinary Portland Cement (OPC) conforming to IS: 269 as required in the work from reputed manufacturers of cement as mentioned in "List showing preferred brands / Manufacturers / Makes" or from any other reputed cement manufacture having a production capacity not less than 1 million Ton per annum as approved by CE, CPWD, Dehradun or his successor. The cement of approved make as aforesaid in 50 kg bags bearing manufacturer's name and ISI marking, along with manufacturers test certificate for each lot shall be procured by the contractor. **However, if the contractor uses higher grade of cement or uses OPC nothing extra shall be paid. The use of PPC shall be regulated as per the following conditions.**
- 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) The mechanical properties such as modulus of elasticity, tensile strength, creep and shrinkage of flyash mixed concrete or concrete using flyash blended cements (PPCs) are not likely to be significantly different and their values are to be taken same as those used for concrete made with OPC.
  - c) To control higher rate of carbonation in early ages of concrete both in flyash admixed as well as PPC based concrete, water/binder ratio shall be kept as low as possible, which shall be closely monitored during concrete production.

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 trials.
  - d) In environment subjected to aggressive chloride or sulphate attack in particular, use of flyash admixed or PPC based concrete is recommended. In case, where structural concrete is exposed to excessive magnesium sulphate, flyash substitution/content shall be limited to 18% by weight. Special type of cement with low C3A content may also be alternatively used. Durability criteria like minimum binder content and maximum water/binder ratio also need to be given due consideration in such environment.
  - e) 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.
  - f) 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.
  - g) Till the time, BIS makes it mandatory to print the %age of flyash on each bag of cement, the certificate from the PPC manufacturer indicating the same shall be insisted upon before allowing use of such cements in works.

- h) While using PPC for structural concrete work, no further admixing of flyash shall be permitted
- 1.2 Supply of cement shall be made in 50 kg. bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of the relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not confirm to the relevant BIS code 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.
- 1.3 The cement shall be brought at site in bulk supply of approximately **50 tonnes** or as decided by the Engineer-in-Charge.
- 1.4 The cement godown of the capacity to store a minimum of **2000 bags** of cement shall be constructed by the contractor at site of work for which no extra payment shall be made.
- 1.5 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 key 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.
- 1.6** The cement shall be got tested by the Engineer-in-Charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge the cement required for testing including its transportation cost to test laboratories. ***The cost of tests shall be borne by the contractor:***
- 1.7. The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10A of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in clause 38 of the contract and shall be governed by conditions laid therein. In case the cement consumption is less than theoretical consumption including permissible variation, recovery at the rate show prescribed shall be made after ensuring structural soundness and stability on the basis of testing. In case of excess consumption, no adjustment need to made.
- 1.8. The cement brought to site and the cement remaining unused after completion of the work shall notbe removed from site without the written permission of the Engineer-in-Charge.
- 1.9. The damaged cement shall be removed from the site immediately by the contractor on receipt of a notice in writing from the Engineer-in-Charge. If he does not do show within three days of receipt of such notice, the Engineer-in-Charge shall get it removed at the cost of the contractor.
- 1.10. Cement bags shall be stored in separate godowns to be constructed by the contractor at his own cost as per sketch (which is only indicative and actual size will depend on the site requirements) given in CPWD specifications with weather proof roofs and walls. Each godown shall be provided with a single shutter door with two locks. The key of one lock shall remain with Engineer-in- charge or his authorized representative and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is issued from the godown according to the daily requirements with the knowledge of both parties and proper account for the same is maintained in the standard proforma.
- 1.11. ***Separate cement registers showing the receipt of the OPC and PPC shall be maintained at site. The contractor shall construct separate godowns for storage of OPC & PPC at site and nothing extra on this account shall be payable.***

- 1.12. In order to have an effective control over the issue of cement, the following drill should be observed:
- (i) The cement godown(s) should be properly and effectively double locked, keys of one of the locks remaining with the department and that of the other with the contractor.
  - (ii) The pages of the Cement Register should be as per Annexure-30 of CPWD Works Manual for SOP-2019, machine numbered and each page initialed by the Executive Engineer.
  - (iii) Periodical checking of cement godown: The cement godown and the Cement Register should be checked by the Assistant Engineer/Executive Engineer in-charge of the work as per following schedule:
    - a) At least weekly or fortnightly, respectively, in case of works at the headquarters of the Assistant Engineer/Executive Engineer.
    - b) Whenever they visit the site of work in case of works that are located outside the Sub-Divisional/Divisional headquarters.
- 1.13. The contractor shall submit original vouchers from the manufacturer for the total quantity of cement supplied under each consignment to be used in the work.

## **2 SPECIAL CONDITIONS FOR STEEL REINFORCEMENT BARS:**

- 2.1 For reinforced cement concrete or pre-stressed concrete works, the reinforcement bars shall consist of the following grades conforming to IS1786 : 2008 (Indian Standard specification for high strength deformed steel bars and wires for concrete reinforcement): Fe 500D, Fe 550D.
- 2.2 The contractor shall obtain manufacture's certificate stating the process of manufacture, chemical composition and test sheet giving result of each mechanical test applicable to the material purchased and submit it to the Engineer-in-charge. Each test certificate shall indicate the number of the cast to which it applies, corresponding to the number or identification mark to be found on the material.
- 2.3 The Engineer-in-Charge shall get each consigning 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.
- 2.4 Reinforcement bar is one of the most important building materials. Its quality directly affects the life span, resistance to earthquake and durability of the structure. In order to ensure consistent quality of rebars, the NIT approving authority may prescribe reputed brands like SAIL, RINL, Tata, JSW, JSPL in the list of preferred makes. Only corrosion resistant steel rebars shall be used. 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.
- 2.5 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.
- 2.6 The steel reinforcement bars shall be brought to the site in bulk supply of **50 tonnes** or as decided by the Engineer-in-charge.
- 2.7. The steel reinforcement shall be stored by the contractor at site of work in such a way as**

**to prevent distortion and corrosion and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.**

- 2.8.** 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:

<b>Size of bar</b>	<b>For consignment below 100 tonnes</b>	<b>For consignment above 100 tonnes</b>
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

- 2.9.** The contractor shall supply free of charge the steel required for testing including transportation to testing laboratories. **The cost of tests shall be borne by the contractor.**
- 2.10.** The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in clause 10A of the contract. The theoretical consumption of steel shall be worked out as procedure prescribed in clause 38 of the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variations recovery at the rate so prescribed shall be made. In case of excess consumption, no adjustment need to be made.
- 2.11.** Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-charge.
- 2.12.** Steel bars brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorized representative of the work on receipt of the same at site before use.
- 2.13.** In case the contractor brings surplus quantity of steel the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the Engineer-in-Charge.
- 2.14.** Reinforcement including authorized spacer bars and overlaps shall be measured in length of different diameters, as actually (not more than as specified in the drawing) used in the work, nearest to a centimeter. Wastage and unauthorized overlaps shall not be measured.
- 2.15.** The standard sectional weights referred to as in Table 5.4 under para 5.3.4 in CPWD Specifications for works 2019 Vol. 1 will be considered for conversion of length of various sizes of MS bars, Tor steel bars and TMT bars into standard weight.
- 2.16.** Records of actual sectional weight shall also be kept dia-wise & lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as derived actual weight.

**2.17. If the derived weight as in para 2.16 above is lesser than the standard weight as in para 2.15 above, the derived actual weight shall be taken for payment. If the derived actual weight is found more than the standard weight then the standard weight as para 2.15 above shall be taken for payment. In such case nothing extra shall be paid for the difference between the derived actual weight and the standard weight.**

**2.18.** Mixing of different type of steel/different grades of steel shall not be allowed in the same structural members as main reinforcement to satisfy clause 26.1 of IS:456.

**2.19.** Tolerances on Nominal Mass (individual sample) shall be as per table 5.4A of CPWD Specification-2019, Vol-I.

**2.20.** The contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be used in the work.

### **3. SPECIAL CONDITIONS FOR PREVENTION OF AIR POLLUTION AS PER DIRECTIVES OF NATIONAL GREEN TRIBUNAL (NGT):**

3.1. The contractor shall not store/dump construction material or debris on metalled road.

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

3.3. The contractor shall take appropriate protection measures like raising wind breakers of 6 meter height on all sides of the plot/area using precoated CGI sheets to ensure that no construction material dust fly outside the plot area.

3.4. The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purpose or are carrying construction material like cement, sand and other allied materials are fully covered. The contractor shall take all 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.

3.5. The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.

3.6. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relating to dust emission.

3.7. The contractor shall ensure that C&D waste is transported to the C&D waste site only and due record shall be maintained by the contractor.

3.8. The contractor shall ensure compulsory use of wet jet in grinding and stone cutting.

3.9. The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines.

3.10. The contractor shall carry out on road inspection for black smoke generating machinery. The contractor shall use cleaner fuel.

3.11. The contractor shall ensure that all DG sets comply emission norms notified by MoEF.

3.12. The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 KMPH. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.

3.13. The contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute



air quality as a result of such storage.

- 3.14. 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.
- 3.15. In case any penalty is imposed by any Hon'ble Court, NGT or any other authority due to non-compliance of any statutory order, or law or guidelines or pollution control or environmental norms, the same will be borne by the contractor.

#### **4. CONDITIONS OF CONTRACT SPECIFIC TO GREEN BUILDING PRACTICE**

The contractor shall strictly adhere to the following conditions as part of his contractual obligations:-

##### **4.1 SITE**

- 4.1.1 The contractor shall ensure that all the top soil excavated during construction works is neatly stacked and is not mixed with other excavated earth. The contractors shall take the clearance of the Engineer in Charge before any excavation. Top soil should be stripped to a depth of 20 cm (centimeters) from the areas to be disturbed, for example proposed area for buildings, roads, paved areas, external services and area required for construction activities etc. It shall be stacked designated areas, covered or stabilized with temporary seeding for erosion prevention and shall be reapplied to site during plantation, landscaping etc. of the proposed vegetation. Top soil shall be separated from subsoil, debris and stones larger than 50 mm diameter. The stored top soil may be used as finished grade for planting areas.
- 4.1.2 The Contractor should follow the construction plan as proposed by the Architect / Engineer in Charge to minimize the site disturbance such as soil pollution due to spilling. Use staging and spill prevention and control plan to restrict the spilling of the contaminating material on site. Protect top soil from erosion by collection storage and reapplication of top soil, constructing sediment basin, contour trenching, mulching etc.
- 4.1.3 No excavated earth shall be removed from the campus unless suggested by Engineer in Charge. All subsoil shall be reused in backfilling/landscape, etc as per the instructions of the Engineer in Charge.
- 4.1.4 The contractor shall not change the natural gradient of the ground unless specifically instructed by the Engineer in Charge. This shall cover all natural features like water bodies, drainage gullies, slopes, mounds, depressions, etc. Existing drainage patterns through or into anypreservation area shall not be modified unless specifically directed by the Engineer-in-charge.
- 4.1.5 The contractor shall not carry out any work which results in the blockage of natural drainage.
- 4.1.6 The contractor shall ensure that existing grades of soil shall be maintained around existing vegetation and lowering or raising the levels around the vegetation is not allowed unless specifically directed by the Engineer-in-charge
- 4.1.7 Contractor shall reduce pollution and land development impacts from automobiles use during construction.
- 4.1.8 Overloading of trucks is unlawful and creates the erosion and sedimentation problems, especially when loose materials like stone dust, excavated earth, sand etc. are moved. Proper covering must take place. No overloading shall be permitted.

- 4.1.9 The dismantle material/building rubbish received from dismantling/demolishing shall be dumped to the dumping ground in properly covered truck with precaution. Agency shall submit the hard copy of photograph showing the properly covered truck disposing the dismantles material/building rubbish. Failure of which shall be sternly dealt and a penalty @ Rs.500/- per trip of truck shall be levied and the decision of Engineer-in-Charge shall be final & binding.
- 4.1.10 Agency/contractor shall not dump the construction material on the metaled road and shall keep the construction material on the physically demarcated space by the Engineer-in-Charge.
- 4.1.11 All the building material responsible for pollution shall be brought at site from sources covered by tarpaulin and shall take all precautionary measure to ensure that no dust particles are permitted to pollute the air quality, failure of which Agency shall be liable to pay damages as decided by Engineer-in-Charge. The decision of Engineer-in-Charge shall be final & binding.
- 4.1.12 There shall be no burning of leaves, plastic etc. at construction site.

#### **4.2 CONSTRUCTION PHASE AND WORKER FACILITIES**

The contractor shall specify and limit construction activity in preplanned/ designated areas and shall start construction work after securing the approval for the same from the Engineer in Charge. This shall include areas of construction, storage of materials, and material and personnel movement.

#### **4.3 PRESERVE AND PROTECT LANDSCAPE DURING CONSTRUCTION**

- 4.3.1 The contractor shall ensure that no trees, existing or otherwise, shall be harmed and damage to roots should be prevented during trenching, placing backfill, driving or parking heavy equipment, dumping of trash, oil, paint, and other materials detrimental to plant health. These activities should be restricted to the areas outside of the canopy of the tree, or, from a safe distance from the tree/plant by means of barricading. Trees will not be used for support; their trunks shall not be damaged by cutting and carving or by nailing posters, advertisements or other material. Lighting of fires or carrying out heat or gas emitting construction activity within the ground, covered by canopy of the tree is not to be permitted.
- 4.3.2 The contractor shall take steps to protect trees or saplings identified for preservation within the construction site using tree guards of approved specification.
- 4.3.3 Contractor should limit all construction activity within the specified area as per the Construction Management Plan (CMP) approved by Engineer in Charge.
- 4.3.4 The contractor shall avoid cut and fill in the root zones, through delineating and fencing the drip line (the spread limit of a canopy projected on the ground) of all the trees or group of trees. Separate the zones of movement of heavy equipment, parking, or excessive foot traffic from the fenced plant protection zones.
- 4.3.5 The contractor shall ensure that maintenance activities during construction period shall be performed as needed to ensure that the vegetation remains healthy.
- 4.3.6 Contractor shall be required to develop and implement a waste management plan, quantifying material diversion goals. He shall establish goals for diversion from disposal in landfills and incinerators and adopt a construction waste management plan to achieve these goals. A project-wide policy of nothing leaves the Site, should be followed, in such a case when strictly followed, care would automatically be taken in ordering and timing of materials such that excess does not become waste. The Contractor ingenuity is especially called towards meeting this prerequisite/ credit (as per 5 star rating of GRIHA/ GHAR CPWD). Consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass,

gypsum wallboard, carpet and insulation. Designate a specific area(s) on the construction site for segregated or commingled collection of recyclable material, and track recycling efforts throughout the construction process. Identify construction haulers and recyclers to handle the designated materials. The diversion may include donation of materials to charitable organizations and salvage of materials on-site.

- 4.3.7 Contractor shall collect all construction waste generated on site. Segregate these wastes based on their utility and examine means of sending such waste to manufacturing units which use them as raw material or other site which require it for specific purpose. Typical construction debris could be broken bricks, steel bars, broken tiles, spilled concrete and mortar etc.
- 4.3.8 The contractor shall provide potable water for all workers.
- 4.3.9** The contractor shall provide the minimum level of sanitation and safety facilities for the workers at their camp/labour site. The contractor shall ensure cleanliness of workplace with regard to the disposal of waste and effluent; provide clean drinking water and latrines and urinals as per applicable standard. Adequate toilet facilities shall be provided for the workman within easy access of their place of work. The total no. to be provided shall not be less than 1 per 30 employees in any one shift. Toilet facilities shall be provided from the start of building operations, connection to a sewer shall be made as soon as practicable. Every toilet shall be so constructed that the occupant is sheltered from view and protected from the weather and falling objects. Toilet facilities shall be maintained in a sanitary condition. A sufficient quantity of disinfectant shall be provided. Natural or artificial illumination shall be provided. **Agency has to ensure all preventive measures to prevent the spread of COVID-19 and nothing extra shall be payable in this account.**
- 4.3.10 The contractor shall ensure that air pollution due to dust/generators is kept to a minimum, preventing any adverse effects on the workers and other people in and around the site. The contractor shall ensure proper screening, covering stockpiles, covering brick and loads of dusty materials, wheel-washing facility, gravel pit, and water spraying. Contractor shall ensure the following activities to prevent air pollution during construction:
- (i) Clear vegetation only from areas where work will start right away
  - (ii) Vegetate / mulch areas where vehicles do not ply.
  - (iii) Apply gravel / landscaping rock to the areas where mulching / paving is impractical
  - (iv) Identify roads on-site that would be used for vehicular traffic. Upgrade vehicular roads (if these are unpaved) by increasing the surface strength by improving particle size, shape and mineral types that make up the surface & base. Add surface gravel to reduce source of dust emission. Limit amount of fine particles (smaller than 0.075mm) to 10 - 20%
  - (v) Water spray, through a simple hose for small projects, to keep dust under control. Fine mists should be used to control fine particulate. However, this should be done with care so as not to waste water. Heavy watering can also create mud, which when tracked onto paved public roadways, must be promptly removed. Also, there must be an adequate supply of clean water nearby to ensure that spray nozzles don't get plugged.
  - (vi) Water spraying shall be done on:
    - (a) Any dusty materials before transferring, loading and unloading
    - (b) Area where demolition work is being carried out
    - (c) Any un-paved main haul road
    - (d) Areas where excavation or earth moving activities are to be carried out
  - (vii) The contractor shall ensure that the speed of vehicles within the site is limited to 10 km/hr.

- (viii) All material storages should be adequately covered and contained so that they are not exposed to situations where winds on site could lead to dust / particulate emissions.
  - (ix) Spills of dirt or dusty materials will be cleaned up promptly so the spilled material does not become a source of fugitive dust and also to prevent of seepage of pollutant laden water into the ground aquifers. When cleaning up the spill, ensure that the clean-up process does not generate additional dust. Similarly, spilled concrete slurries or liquid wastes should be contained / leaned up immediately before they can infiltrate into the soil / ground or runoff in nearby areas
  - (x) Provide barricading of not less than 6 metre or higher as per direction of Engineer-in- charge, along the site boundary, next to a road, around batching plant or other public area. Nothing extra shall be paid on this account. The construction work is to be carried out in two phases therefore, the under constructed site/building should be separated by minimum 3 meter barricading to minimize the disturbance to the occupants of the existing building.
  - (xi) Provide dust screens, sheeting or netting to scaffold along the perimeter of the building
  - (xii) Cover stockpiles of dusty material with impervious sheeting
  - (xiii) Cover dusty load on vehicles by impervious sheeting before they leave the site.
- 4.3.11 Contractor shall be required to provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals.
- 4.3.12 The contractor shall ensure that no construction leachate (e.g. cement slurry etc.), is allowed to percolate into the ground. Adequate precautions are to be taken to safeguard against this including, reduction of wasteful curing processes, collection, basic filtering and reuse. The contractor shall follow requisite measures for collecting drainage water run-off from construction areas and material storage sites and diverting water flow away from such polluted areas. Temporary drainage channels, perimeter dike/swale, etc. shall be constructed to carry the pollutant-laden water directly to the treatment device or facility (municipal sewer line).
- 4.3.13 Staging (dividing a construction area into two or more areas to minimize the area of soil that will be exposed at any given time) should be done to separate undisturbed land from land disturbed by construction activity and material storage.
- 4.3.14 The contractor shall comply with the safety procedures, norms and guidelines (as applicable) as outlined in the document Part 7 Constructional practices and safety, National Building code -2016 Bureau of Indian Standards. A copy of all pertinent regulations and notices concerning accidents, injury and first-aid shall be prominently exhibited at the work site. Depending upon the scope & nature of work, a person qualified in first-aid shall be available at work site to render and direct first-aid to casualties. A telephone may be provided to first-aid assistant with telephone numbers of the hospitals displayed. Complete reports of all accidents and action taken thereon shall be forwarded to the competent authorities.
- 4.3.15 The contractor shall ensure the following activities for construction workers safety, among other measures:
- (i) Guarding all parts of dangerous machinery.
  - (ii) Precautionary signs for working on machinery
  - (iii) Maintaining hoists and lifts, lifting machines, chains, ropes, and other lifting tackles in good condition.
  - (iv) Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.

- (v) Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts.
  - (vi) Provide protective equipment; helmets etc.
  - (vii) Provide measures to prevent fires. Fire extinguishers and buckets of sand to be provided in the fire-prone area and elsewhere.
  - (viii) Provide sufficient and suitable light for working during night time.
- 4.3.16 The storage of material shall be as per standard good practices as specified in Part 7, Section 3. Storage, stacking and Handling practices, NBC 2016 and shall be to the satisfaction of the Engineer in Charge to ensure minimum wastage and to prevent any misuse, damage, inconvenience or accident. Watch and ward of the Contractor's materials shall be his own responsibility. There should be a proper planning of the layout for stacking and storage of different materials, components and equipments with proper access and proper maneuverability of the vehicles carrying the materials. While planning the layout, the requirements of various materials, components and equipments at different stages of construction shall be considered.
- 4.3.17 The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilisation of these bins for any solid waste generated during the construction. The contractor shall ensure that the site and the workers facilities are kept litter free. Separate bins should be provided for plastic, glass, metal, biological and paper waste and labelled in both Hindi and English with suitable symbols.
- 4.3.18 The contractor shall prepare and submit spill prevention and control plans before the start of construction, clearly stating measures to stop the source of the spill, to contain the spill, to dispose the contaminated material and hazardous wastes, and stating designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.
- 4.3.19 Contractor shall collect & submit the relevant material certificates for materials with high recycled (both post-industrial and post-consumer) content, including materials like RMC mix with fly-ash, glass with recycled content, calcium silicate boards etc.
- 4.3.20 Contractor shall collect the relevant material certificates for rapidly renewable materials such as bamboo, wool, cotton insulation, agrifiber, linoleum, wheat board, strawboard and cork etc.
- 4.3.21 Where possible, the contractor shall select materials/vendors, harvested and manufactured regionally.
- 4.3.22 Contractor shall adopt an IAQ (Indoor Air Quality) management plan to protect the HVAC system during construction, control pollutant sources, and interrupt pathways for contamination. He shall sequence installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard. He shall also protect stored on-site or installed absorptive materials from moisture damage.
- 4.3.23 The contractor shall ensure that neat and deep cleaning of all internal spaces is conducted prior to handover. This shall comprise an opening of all doors and windows for 14 days to vent out any toxic fumes due to paints, varnishes, polishes, etc.
- 4.3.24 Contractor shall make efforts to reduce the quantity of indoor air contaminants that are odorous or potentially irritating harmful to the comfort and well-being of installer and building occupants. Contractor shall ensure that the VOC (Volatile Organic Compounds) content of paints, coatings and primers used must not exceed the VOC content limits mentioned below:
- a) Paints

- b) Non-flat - 150 g/L Flat (Mat) - 50 g/L Anti corrosive/ anti rust - 250 g/L Coatings / Clear wood finishes Varnish - 350 g/L Lacquer - 550 g/L
- c) Floor coatings - 100 g/L Stains - 250 g/L Sealers
- d) Waterproofing sealer - 250 g/L Sanding sealer - 275 g/L Other sealers - 200 g/L
- e) The VOC (Volatile Organic Compounds) content of adhesives and sealants used must be less than VOC content limits mentioned:
- f) Architectural Applications VOC Limit (g/l less water)
- g) Indoor Carpet adhesives - 50 g/L Carpet Pad Adhesives - 50 g/L Wood Flooring Adhesive - 100 g/L Rubber Floor Adhesives - 60 g/L Sub Floor Adhesives . 50 g/L Ceramic Tile Adhesives - 65 g/L
- h) VCT and Asphalt Tile adhesives - 50 g/L DryWall and Panel Adhesives - 50 g/L Structural Glazing Adhesives - 100 g/L Multipurpose Construction Adhesives . 70 g/L
- i) Substrate Specific Application VOC Limit (g/l less water) Metal to Metal - 30 g/L Plastic Foams - 50 g/L
- j) Porous material (except wood) - 50 g/L Wood - 30 g/L Fiber Glass . 80 g/L

4.3.25 Wherever required, Contractor shall meet and carry out documentation of all activities on site, supplementation of information, and submittals in accordance with IGBC LEED India New Construction v1.0 & GRIHA / or equivalent of GHAR, CPWD program standards and guidelines. Towards meeting the aforementioned building environmental rating standard(s) expert assistance shall be provided to him up on request.

#### 4.3.26 Water Use during Construction

Contractor should spray curing water on concrete structure and shall not allow free flow of water. Concrete structures should be kept covered with thick cloth/gunny bags and water should be sprayed on them. Contractor shall do water ponding on all sunken slabs using cement and sand mortar bunds.

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

4.3.28 The contractor shall provide O & M Manuals wherever applicable.

## 4.4 MATERIALS & FIXTURES FOR THE PROJECT

4.4.1 Contractor will produce wherever feasible certificate regarding distance of the source of the relevant material.

- (a) Unless otherwise stated cement used at site for reinforced concrete, precast members, mortar, plaster, building blocks, etc shall be PPC.
- (b) The contractor shall ensure that all paints, polishes, adhesives and sealants used both internally and externally, on any surface, shall be Low VOC products. The contractor shall get prior approval from the Engineer in Charge before the application of any such material.
- (c) All plumbing and sanitary fixtures installed shall be as per the direction of the Engineer in Charge and shall adhere to the minimum LPM (litres per minute) and LPF (litres per flush) mentioned.

- (d) Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to bye-laws and specifications of the Municipal body/ corporation where CPWD specifications are not available. The contractor should engage licensed plumbers for the work and get the materials (fixture/ fittings) tested by the Municipal body/ corporation authorities wherever required at his own cost.

#### **4.5 RESOURCES CONSUMED DURING CONSTRUCTION**

- (a) The contractor shall ensure that the water and electricity is not wasted during construction. The Engineer in Charge can bring to the attention any such wastage and the contractor will have to ensure that such bad practices are corrected.
- (b) The contractor shall ensure that all run-off water from the site, during construction is collected and reused to the maximum.
- (c) The contractor shall use treated recycled water of appropriate quality standards for construction, if available.

#### **4.6 CONSTRUCTION WASTE**

- (a) All construction debris generated during construction shall be carefully segregated and stored in a demarcated waste yard. Clear, identifiable areas shall be provided for each wastetype. Employ measures to segregate the waste on site into inert, chemical, or hazardous wastes.
- (b) No construction debris shall be taken away from the site, without the prior approval of the Engineer in Charge.
- (c) The contractor shall recycle the unused chemical/hazardous wastes such as oil, paint, batteries, and asbestos.
- (d) If and when construction debris is taken out of the site, after prior permissions from the Engineer in Charge, then the contractor shall ensure the safe disposal of all wastes and will only dispose of any such construction waste in approved dumping sites.

#### **4.7 Documentation:**

- a) Digital photo documentation to demonstrate compliance of safety guidelines.
- b) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer in Charge on daily basis:
  - i) Quantities of material brought into the site, including the material issued to the contractor by the Engineer in charge.
  - ii) Inventories of materials used in the work i/c. flyash, flyash bricks etc.
  - iii) Digital photographs of the works at site, the workers facilities, the waste and other material storage yards, pre-fabrication and block making works, etc as guided by the Engineer in Charge.
- c) The contractor shall submit a document after construction of the buildings, a brief description along with photographic records to show that other areas have not been disturbed during construction.
- d) The contractor shall submit to the Engineer in Charge, before the start of construction, a site plan along with a narrative to demarcate areas on site from which top soil has to be gathered, designate area where it will be stored, measures adopted for top soil preservation and indicate areas where it will be reapplied after construction is complete.

- e) Provide supporting document from the manufacturer of the cement specifying the flyash content in PPC used in reinforced concrete.

#### **4.8 EQUIPMENT**

- a) To ensure energy efficiency during and post construction all pumps, motors and engines used during construction or installed, shall be subject to approval of the Engineer-in- Charge.
- b) All lighting installed by the contractor around the site and at the labour quarters during construction shall be appropriate illumination levels. This condition is a must, unless specifically prescribed.

#### **4.9 Submission of Pollution Control Plan**

- (a) The contractor shall submit the detailed action plan for control of pollution and for adherence to all the environmental guidelines/Laws/statutes/Court Orders/NGT orders/orders of pollution control authorities through the entire period of construction at site. The detailed action plan shall be submitted to the Engineer-in- Charge within 15 days of the stipulated date of start of work and shall be got approved from the Engineer-in-Charge.
- (b) The contractor shall arrange for control measures of all dust/noise/emission from the construction activities at site of work and shall install screens/curtains/ covers/dust trappers etc. as per guidelines/orders of the NGT/Court of law/ statutory authorities etc. No hindrance shall be allowed, arising out of any stay/stopping of work from any court/statutory authority/NGT/Govt. Authorities as a consequence of the contractor not adhering to any pollution control guideline/law/order of the state bodies during the construction period. Nothing shall be paid to the contractor on account of expenses for any dust/pollution/emission control measures at the site of work or any delay in work due to any orders passed by any court/ statutory authority/Govt. Authorities during the period of construction.
- (c) ***A compensation of Rs. 2,000/- per day will be levied and recovered from the dues of the contractor for each day of delay beyond 15 days for non submission of pollution control plan.***
- (d) The contractor is strongly advised to study all dust/Noise/emission/ pollution control norms/laws/Court Orders before bidding for the work and quote his rates accordingly for any liability which may arise on this account during the period of construction.

**Note 1:** The special conditions detailed above are in addition to general /additional conditions as specified elsewhere in tender document.

**Note 2:** Nothing extra shall be paid on the account of these special conditions.



## PARTICULAR SPECIFICATIONS

### 1) EARTH WORK

- a) The work shall be done in accordance with CPWD Specifications - 2019 - Vol.I & Vol. II and National Building Code 2016 with upto date correction slips.
- b) **The contractor at his own expense shall put up the necessary shoring, strutting and planking or cut slopes with or without steps, to a safer angle or both with due regard to the safety of personnel and works and to the satisfaction of the Engineer – in – charge. Nothing extra shall be paid in this account.**
- c) Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machineries and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.
- d) *The Jungle clearance and clearance of grass are not payable separately for any type of Earth Work in excavation and Preparation of sub-grade.*

### 2) RCC/CC Work

- a) The work shall be done in accordance with CPWD Specifications - 2019 - Vol.I & Vol. II and National Building Code 2016 with upto date correction slips.
- b) The contractor shall engage one of the IIT/NIT/Reputed Govt. Engineering Institutions/Approved Laboratories as directed by the Engineer-in-charge at his own expenses for designing the concrete mix in accordance with relevant IS Codes and to conduct laboratory test to ensure the target strength and workability criteria for a given grade of concrete.
- c) In case of change of source or characteristic properties of the ingredients used in the concrete mix during the work, a revised laboratory mix design report conducted at laboratory established at site shall be submitted by the contractor as per the direction of the Engineer-in-Charge.
- d) All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the Contractor including redesigning of the concrete mix wherever required and directed by Engineer-in-Charge.

### 3) SHUTTERING / FORM WORK

- a) The work shall be done in accordance with CPWD Specifications- 2019 Vol. I & Vol. II with upto date correction slips.
- b) **All the RCC work shall be shutter finished. Basically, only steel shuttering shall be adopted in general. However, a combination of steel and shuttering ply conforming to IS: 848-1974 and LS: 5539 may be allowed by the Engineer-in-charge in consideration of the special request of the contractor to maintain quality and speed of the work. In such cases the use of shuttering ply shall be permitted only for circular columns, beam sides and bottom and in other locations wherever it is felt necessary on account of difficulty in using steel shuttering in such locations. But in other areas like slab, rectangular / square columns etc. steel shuttering shall be invariably used. However, no extra payment or deduction will be admissible or made for use of shuttering ply.**
- c) The shuttering plates shall be cleaned properly with electrically driven sanders to remove any

cement slurry or cement mortar or rust. Proper shuttering oil or debonding compound shall be applied on the surface of the shutter plates in the requisite quantity before assembly of steel reinforcement.

- d) The joint filler shall be resilient closed cell expanded polyethene and non-tainting as per manufacturer specification and direction of Engineer-in-Charge.
- e) Providing joint filler of required thickness in position to substrate using either double sided foam adhesive tape or neoprene synthetic rubber adhesive.
- f) ***Nothing extra shall be paid for the centering and shuttering, circular in shape whenever the form work is having a mean radius exceeding 6m in plan.***
- g) ***In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of RCC shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the Contractor.***
- h) ***As per general engineering practice, level of floors in toilet / bath, balconies, shall be kept 25 mm as required lower than general floors shuttering should be adjusted accordingly and slabs should be laid with slope towards the drainage point. Nothing extra is payable on this account.***
- i) ***To avoid displacement of reinforcement bars in any direction and to ensure proper cover, only factory-made round type/rectangular cover blocks shall be used by the contractor. Nothing extra shall be payable on this account.***

#### **4) STONE / MARBLE /GRANITE WORK (OTHER THAN MASONARY)**

- a) The execution of stones work shall be in general as per CPWD Specifications - 2019 - Vol.I& Vol. II with upto date correction slips.
- b) ***All holes, rebates, recesses etc. for providing fixing and inserts shall be predrilled and precut and worked using precision machine tools. Nothing extra on this account shall be payable.***
- c) SAMPLES FOR STONE WORK: Samples of each item of stone work either individually or in combination shall be prepared for approval of Engineer-in-Charge before commencement of work.
- d) Sequence of execution for cladding work shall be suggested by the contractor for approval of Engineer-in-Charge.

#### **5) SCAFFOLDING**

- a) Double steel scaffolding having two sets of vertical supports shall be provided. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding planks shall be fixed.

#### **6) WOOD WORK**

- a) Factory made shutter as specified shall be obtained from factories approved by the Engineer in charge. The contractor shall inform well in advance to the Engineer-in-charge the names and address of the factory from where the contractor intends to get the shutters manufactured.
- b) All fittings and fixtures shall be got approved from the Engineer-in Charge before

procurement well in advance and the approved samples shall be kept at site till completion of the work.

- c) Glazing for toilets shall be of translucent type.
- d) The shape and size of beading shall be as per drawings. The joints of beading shall be mitered.

## 7) FLOORING

- a) All work in general shall be carried out as per CPWD Specifications- 2019 - Vol.I& Vol. II with upto date correction slips.
- b) ***Whenever flooring is to be done in patterns tiles/ stone, the contractor shall get samples of each pattern laid and approved by the Engineer-in-Charge before final laying of such flooring for which nothing extra shall be paid.***
- c) ***POP protection layer shall be laid on all finished floors for protection from damage during execution of other items of work in that area which shall be removed and cleaned just before handing over of the premises for which nothing extra shall be paid.***
- d) The samples of flooring, dado & skirting as per approved pattern shall be prepared & got approved from the Engineer-in-charge before execution of work.
- e) ***Single piece granite stone slab shall be provided in treads (with 15 mm pre-moulded nosing) and single piece polished granite of approved shade shall be used for risers. Nothing extra shall be payable on any account***

## 8) WATER PROOFING TREATMENT

- a) Work shall be executed as per CPWD Specifications, 2019 Vol I & II with upto date correction slips and manufac.
- b) The contractor shall associate himself with the specialized firm, to be approved by the Engineer- in-charge in writing, for water proofing treatment for basement/lower ground floor, underground tank and on roofs.
- c) Before commencement of treatment on roof surface, it shall be ensured that the outlet drain pipes/ spouts have been fixed and the spout opening have been eased and rounded off properly for easy flow of water.
- d) The work shall carry **Ten Years guarantee** to be reckoned from the date of completion of the entire work under the contract against faulty workmanship, finishing, unsound materials, efficiency of water proofing treatment and other related problems.

**Ten Years Guarantee bond** in prescribed Performa attached herewith as **Annexure-I** shall be submitted by the contractor which shall also be signed by both the specialized agency and the contractor to meet their liability / liabilities under the guarantee bond. However, the sole responsibility about efficiency of water proofing treatment shall rest with the main contractor.

**10% (Ten percent) of the tender amount of whole water proofing work** shall be retained as security deposit and the amount so withheld would be released after ten years from the date of completion of the entire work under the contract, if the performance of the work done is found satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

However, the security deposit deducted may be released in full against bank guarantee of equivalent amount in favour of Engineer in charge, if so decided by the Engineer in charge.

The Security deposit against this item of work shall be in addition to the security deposit mentioned elsewhere in contract form.

#### **9) SANITARY INSTALLATIONS, WATER SUPPLY AND DRAINAGE**

- a) The scope of work comprises supply, laying, installation, commissioning and testing of water supply, sewerage and drainage works including sanitary fixtures and fittings. These works shall be executed as per the specifications of items attached and CPWD specifications- 2019 Vol. I & II with up-to-date correction slips up to the date of tender submission.
- b) **The work of water supply and sanitary installations shall be got executed by the agency as approved by Engineer-in-Charge. The work shall be executed as per drawings issued by Engineer-in charge.**
- c) The work of water supply, internal sanitary installations and drainage etc. shall be carried out as per the bylaws of the Municipal Corporation or any other local body and the contractor shall produce necessary completion certificates from such authority after completion of work.
- d) All water tanks, taps, sanitary, water supply and drainage pipes fittings and accessories etc. shall conform to the bylaws and specifications of the Municipal Body/Corporation where CPWD specifications are not available.
- e) ***The contractor shall engage licensed plumbers for the work.***
- f) The contractor shall submit samples of all fittings and fixtures proposed to be used to the Engineer-in-charge for his approval. The approved samples shall remain with the Engineer-in-charge till the completion of the work.
- g) ***The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.***
- h) **Guarantee**

**Five years guarantee bond** in prescribed proforma attached at **Annexure-II** herewith shall be submitted by the contractor to meet their liability/ liabilities under the guarantee bond

**5% (Five percent) of the tender amount of whole sanitary installations and water supply** be retained as security deposit and the amount so withheld would be released after five years from the date of completion of the entire work under the agreement, if the performance of the work done is found satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

However, the security deposit deducted may be released in full against bank guarantee of equivalent amount in favour of authority intimated by Engineer-in-Charge, if so decided by the Engineer-in-Charge.

The security deposit against this item of work shall be in addition to the security deposit mentioned elsewhere in contract for

#### **10) SPECIFICATIONS FOR ALUMINIUM DOOR, WINDOW, VENTILATOR WORKS:**

- a) The work shall be carried out through an approved specialized agency, who shall furnish all materials, labour, accessories, equipment, tool and plant and incidentals required for providing and installing aluminum doors, windows, claddings, louvers and other items as called for on the drawings.
- b) Work shall be carried out as per CPWD Specifications- 2009 Vol. I & Vol.II with upto date correction slips.
- c) Guarantee.

**Five years guarantee bond** in prescribed proforma attached at **Annexure-II** herewith shall be submitted by the contractor the contractor to meet their liability/ liabilities under the guarantee bond.

**5% (Five percent) of the tender amount of whole sanitary installations and water supply** be retained as security deposit and the amount so withheld would be released after five years from the date of completion of the entire work under the agreement, if the performance of the workdone is found satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

However, the security deposit deducted may be released in full against bank guarantee of equivalent amount in favour of authority intimated by Engineer-in-Charge, if so, decided by the Engineer-in- Charge.

The security deposit against this item of work shall be in addition to the security deposit mentioned elsewhere in contract for

#### 11) FIRE CHECK DOORS

- a) The work shall be carried out through an approved specialized agency/manufacturer, who shall furnish all materials, labour, accessories, equipment, tool and plant and incidentals required for providing and installing Fire Check doors. The specialized agency shall be got approved from theEngineer-in-charge, well before actual commencement of the item of work.
- b) **GUARANTEE:**

Specialized agency/Manufacturer & Contractor to offer a warrantee on the Fire Doors for a period of Five Years to be reckoned from the date after the expiry of maintenance period prescribed in the contract of the work against faulty workmanship, finishing, unsound materials, structural instability and other related problems.

**Five Years Guarantee bond** in prescribed Performa attached herewith as **Annexure-III** shall be submitted by the contractor to meet their liability / liabilities under the guarantee bond.

**Five percent of the cost of Fire Doors** shall also be retained as security deposit and the amount so withheld would be released after Five Years to be reckoned from the date after the expiry of maintenance period prescribed in the contract, if the performance of the work done is found satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be gotdone from anotheragency at the risk and cost of contractor.

However, the security deposit deducted may be released in full against bank guarantee of equivalent amount in favour of Engineer in charge, if so decided by the Engineer in charge.

The Security deposit against this item of work shall be in addition to the security deposit mentioned elsewhere in contract form.

## 12) STRUCTURAL GLAZING

- a) The work shall be carried out through an approved specialized agency, who shall furnish all materials, labour, accessories, equipment, tool and plant and incidentals required for providing and installing Structural Glazing work. The specialized agency shall be got approved from the Engineer-in-charge, well before actual commencement of the item of work.
- b) The work shall be executed as CPWD specification 2019 Vol.I & Vol. II, BIS codes and manufacturers specifications.
- c) The Contractor shall submit detailed shop drawings for the Structural wall system, aluminum composite panel cladding works to the Engineer-in-charge for review and approval.
- d) Shop Drawings shall be signed and sealed by a Qualified Structural Engineer with specific experience in Structural Glazing Wall construction and design.
- e) **GUARANTEE:**

Contractor & Specialized agency to offer a warranty on the cladding work and structural glazing for a period of Five Years to be reckoned from the date after the expiry of maintenance period prescribed in the contract of the work against faulty workmanship, finishing, unsound materials, structural instability and other related problems.

**Five Years Guarantee bond** in prescribed Proforma attached herewith as **Annexure-IV** shall be submitted by the contractor to meet their liability / liabilities under the guarantee bond.

**Five percent of the cost of Fire Doors and structural glazing** shall also be retained as security deposit and the amount so withheld would be released after Five Years to be reckoned from the date after the expiry of maintenance period prescribed in the contract, if the performance of the work done is found satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

However, the security deposit deducted may be released in full against bank guarantee of equivalent amount in favour of Engineer in charge, if so decided by the Engineer in charge.

The Security deposit against this item of work shall be in addition to the security deposit mentioned elsewhere in contract form.

## 13) CONDITIONS FOR uPVC DOOR/WINDOWS/VENTILATOR WORK

The contractor shall only employ experienced and specialized workmen/sub-contractors for carrying out the uPVC door/window/ventilator work.

Five years Guarantee bond in prescribed proforma attached herewith as **Annexure-V** shall be submitted by the contractor to meet his liabilities under the Guarantee Bond. The sole responsibility about quality of uPVC door/window/ventilator work shall rest with the contractor.

**5% (Five percent)** of the cost of uPVC door/window/ventilator work shall be retained as security

deposit and the amount so withheld would be released after five years from the date of completion of the entire work under the agreement, if the performance of the work done is found satisfactory. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done by the Engineer-in-charge at the risk and cost of contractor.

However, the security deposit deducted may be released in full against Bank Guarantee of equivalent amount in favour of Engineer-in-charge, if so decided by the Engineer-in-charge. The security deposit against this work shall be in addition to the security deposit mentioned elsewhere in contract form.

#### 14) **ROAD WORK**

Road work shall conform to CPWD specification 2019, in case the same is not available in CPWD specification or if required as per item, the MORTH specifications for roads and bridges 2001 shall be followed. **Five years (05) guarantee bond** in prescribed Performa attached at **Annexure-VI** herewith shall be submitted by the contractor which shall also be signed by both the specialist agency and the contractor to meet their liability / liabilities under the guarantee bond. However, the sole responsibility shall rest with the building contractor.

**10% (Ten percent) of the cost of bituminous layers of road work** shall be retained as security deposit and the amount so withheld would be released after ten years from the date of completion of the entire work under the agreement, if the performance of the work done is found satisfactory, if any defects like leakage and manufacturing defects etc. is noticed during the guarantee period, it shall be rectified by the contractor within seven days of the receipt of intimation of defects in the work, if the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of the contractor.

However, the security deposit deducted may be released in full against bank guarantee of equivalent amount in favour of Engineer-in-charge, if so, decided by the Engineer-in-charge.

The Security deposit against this item of work shall be in addition to the security deposit mentioned elsewhere in contract form.

#### 15) **LIST OF SPECIALISED ITEMS**

##### a) **Water proofing treatment work.**

For waterproofing works of roof, depressed portion of toilets, kitchen and wet areas, Specialized Agencies shall have to be associated by the agency in case the agency does not possess the requisite eligibility and experience as per NIT conditions to carry out these works.

##### b) **PROCEDURE FOR EXECUTION OF THE SPECIALIZED ITEMS:**

The contractor shall indicate the name(s) of his associated specialized agencies those fulfilling the eligibility conditions as early as possible and within 10 days of award of work to Engineer-in-Charge for approval *in case, the agency does not possess the requisite eligibility and experience as per NIT conditions to carry out these works.*

The contractors shall quote the rates after careful study of contract conditions, specifications, drawings & schedule of quantities.

It shall be the responsibility of main contractor to sort out any dispute / litigation with the Specialized Agencies without any time & cost overrun to the Department. The main contractor shall be solely responsible for settling any dispute / litigation arising out of his agreement with the Specialized Agencies. The contractor shall ensure that the work shall not suffer on account of litigation/ dispute between him and the specialized agencies / sub-contractor(s). No claim of hindrance in the work shall be entertained from the Contractor on this account. No extension of time shall be granted and no claim what so ever, of any kind, shall be entertained from the Contractor on account of delay attributable to the selection/rejection of the Specialized Agencies.

For specialized items, the main contractor cannot work as a specialized agency unless his name is already included in the list of approved specialized agencies for these items. The contractor shall get these items executed through the specialized agencies as approved by Engineer in Charge.

**c) ELIGIBILITY CONDITIONS FOR APPROVAL OF SPECIALIZED AGENCIES:**

The Contractor(s) shall submit his proposal for the approval of the Engineer-in-Charge, thenames of specialized agencies of repute along with their technical capability /experience proposed to be engaged by him. The agency must be currently actively engaged in execution of the said specialized item and must have who have satisfactorily executed similar work during last7 (Seven) years as below:

(i) Three works each of value not less than 40% of corresponding cost of the specialized items.

**or**

(ii) Two works each of value not less than 60% of corresponding cost of the specialized items.

**or**

(iii) One work of value not less than 80% of corresponding cost of the specialized items.

For calculation purpose only, cost of the specialized item as per accepted tendered value of the allthe items corresponding to the specialized item under consideration.

***For ascertaining the above criteria, contractor shall provide certified copy of Income tax TDS certificates for payments made, work order copy, completion certificate, performance certificate against each completed similar work for verification by Engineer in charge. In case required and directed by Engineer in charge, contractor shall get such similar completed work inspected by Engineer in charge and contractor shall extend all necessary help for same at no extra cost to the department. Decision as to approve or reject the proposed specialized agency based on the inspection of the completed work shall be final and binding on the contractor andno claim, whatsoever, shall be admissible on this account and the contractor shall be required to propose another specialized agency as per the required eligibility criteria.***



### LIST OF ACCEPTABLE MAKES OF MATERIALS

Acceptable makes of materials to be used in the work are as given in the table below. In case of non-availability of these makes, the Engineer-in-charge may allow use of alternative makes after approval of NIT approving authority. Only BIS marked materials shall be used in the work. Non-BIS marked materials may be permitted by the Engineer-in-charge only when BIS marked materials are not manufactured.

S. No.	Materials	Name of Manufacturers
1.	(i) Ordinary Portland Cement/Portland Pozzolana Cement.	A.C.C., Ultratech, Ambuja Cement, J.K. Cement, Century Cement, Shree Cement, Jaypee Cement, Vikram Cement,
	(ii) White Cement	Birla White, J.K. White.
2.	Reinforcement Steel, Structural steel	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd (RINL), JSW Steel Ltd., Jindal Steel Power Ltd. (JSPL).
3.	Water Proofing compounds, Admixture, Plasticizer, SuperPlasticizer, Curing Compounds	Fosroc, Dr. Fixit (Pidilite Industries), CICO, Sika BASF, ArdexEndura (Bal Endura)
4.	SEALANT, Epoxy Repair Mortar, Epoxy Bonding Adhesive, Micro concrete, Primer for Polysulphide sealant.	BASF, MAPEI.WURTH
5.	Grouts, Tile Adhesive	Latecrete, BASF, Ardex Endura, Ferrous Crete.
6.	Polycarbonate Sheet	GE Plastic, LEXAN
7.	Profile Steel Sheet (Precoated)	Ezydeck of TATA, JSW/ Jindal
8.	Particle Board	Merino, Action TESA, Greenlam, Century
9.	Laminated Particle Board/Laminates	Action TESA, Greenlam, Century Ply, Merino.
10.	Flush door Shutters	Merino, Action TESA, Greenlam, Century Note: Only ISI marked flush door to be used.
11.	Fire Rated Doors	NAVAIR, Sukri, Bhawani,
12.	False Ceiling system	Armstrong, Saint Gobain, Aerolite, Durlum,.
13.	Plywood/ Veneer	Green Ply, Century, Merino, Duro,.
14.	Floor Spring, Door Closer, PANICBARS	Geze, Dorma, Hafele. Magnum,
15.	(a) Aluminium section	Hindalco, Jindal, Indian Aluminium Co.
16.	(b) Clear/Float/Frosted/Refractive/ Coated Glass	Saint Gobain, AIS, Modiguard.
18.	Stainless Steel Railing, Accessories etc.	JINDAL, Dorma, Kitch, GEZE, Godrej.
19.	S.S. Door & window Fittings	JINDAL, Dorma, Kitch, Doorset, Godrej, Ozone.
20.	Mosaic Tiles/ Chequered Tiles	Ultra Tiles, NITCO, KK.
21.	Ceramic Tiles	Somany, Kajaria, NITCO, RAK. Note: The tiles manufactured at mother plant be used.
22.	Vitrified Tiles (Antiskid/ Matt/Glazed)	Somany, Kajaria, NITCO, RAK. Note: The tiles manufactured at mother plant be used.
23.	Paver Block & Kerb Stone	KK, Swastic tiles-Alwar, Dalaal tiles.
24.	Dash/Anchoring Fasteners	HILTI, Fischer, Bosch, Wurth.
25.	Cement Based wall putty	Birla Wall care, JK white, AsianPaints.
26.	SS FLOOR STOPPER	Dorma, Hafele, Magnum, NEKI
27.	1 <sup>st</sup> Quality Acrylic Distemper (washable/Ready mix/Low VOC)	Asian Paints (Tractor Aqua Lock Paint) Berger: Commando or Equivalent paints of Nerolac or ICI-Dulux.
28.	Acrylic Emulsion Paints	Asian Paints, Nerolac, Berger, ICI-Dulux
29.	Premium Acrylic/Plastic Emulsion Paints (Interior)	Asian Paints, Nerolac, Berger, ICI-Dulux
30.	Textured Exterior Paint	Asian Paints, Nerolac, Berger, ICI-Dulux

31.	Textured Exterior Paint	Asian Paints, Nerolac, Berger, ICI-Dulux
32.	Acrylic Smooth Exterior Paint	Asian Paints, Nerolac, Berger, ICI-Dulux
33.	Premium Acrylic Smooth Exterior Paints with Silicon Additive.	Asian Paints, Nerolac, Berger, ICI-Dulux
34.	Synthetic Enamel paint	Asian Paints, Nerolac, Berger, ICI-Dulux
35.	Cement Primer	Asian Paints, Nerolac, Berger, ICI-Dulux
36.	Steel Primer (Red Oxide Zinc Chromate Primer)	Asian Paints, Nerolac, Berger, ICI
37.	Wood Primer	Asian Paints, Nerolac, Berger, ICI-Dulux
38.	Epoxy Paint	Asian Paints, Nerolac, Berger, ICI-Dulux
39.	Fire Paint	Asian Paints, Nerolac, Berger, ICI-Dulux
40.	G.I./ M.S Pipe	Tata, Jindal (Hisar),.
41.	G.I. Fittings	Unik, Zoloto
42.	HDPE Pipes	Reliance, Jain Pipes, Supreme
43.	DI PIPES	Elctrosteel, Jindal, TATA DUCTURA, Kesoram.
44.	DI Fittings	Elctrosteel, Jindal, TATA DUCTURA, Kesoram.
45.	UPVC pipe and fittings	Astral, Supreme, Prince,
46.	Centrifugally cast (spun) Iron Pipes & fittings	NECO, SKF, HIF
47.	C.I Manhole Covers, Frames & GI Gratings	NECO, SKF, HIF
48.	SFRC Manhole Cover & gratings	KK, JAIN, PARGATI
49.	WPC DOORS & FRAMES	ALSTONE, Vardhman composite india, CENTURY
50.	WPC BOARDS	ALSTONE, Vardhman composite india, CENTURY
51.	CP Brass Fitting	Jaquar, Grohe, Roca, Kohler, Kerovit
52.	Sanitary ware, Fittings & accessories	Jaquar, Kohler, Roca, Grohe, Kerovit, Hindware,
53.	Mirror Glass	Sant Gobin, Atul, Modi Guard,.
54.	CPVC Pipe & Fitting	Astral, Supreme, Prince.
55.	Stainless Steel sink	Neelkanth, Nirali, Jayna.
56.	RCC Pipes (NP-2)	Lakshmi, Sood & Sood, Jain Pipe Co. (Newai), Mahaveer Enterprises (Newai), work well spun pipes (Pali)
57.	UPVC Doors and windows (Profilemakers and their authorized fabricators only)	Fenesta, VEKA, RHEAU, Aluplast, Encraft
58.	Extruded Polystyrene Insulation Board	Dow Corning, Supreme, Texas, Analco.
59.	Heat Resistant Tiles	Swastik, Thermatek
60.	Gypsum Plaster	Ferrous Crete, Gyproc, Saint Gobain, Ultratech
61.	Floor Hardener	Ironite, Ferrok, Hardonate
62.	Modular Expansion Joint	Herculus, Sanfield India Ltd. Vexcolt,
63.	Glass Wool	Dow Corning, U.P. Twiga, Isover
64.	uPVC doors and window Hardware	Rotto, Dorset, Kinlong
65.	AAC Block Adhesive	Ultratech, Ardex Endura, Ferrous Crete.
66.	AAC Block	Biltech, Eco Green, Finecrete, J.K. Lakshmi Cement Ltd, Indo Bhutan, Shree, Ultratech
67.	Shower Encloser	JAQUAR, KOHLER, Roca, Grohe
68.	Anchor Fasteners, Rebar Chemicals, Mechanical Fasteners, SS Stone Cladding Clamps, Sealants, Core Cutting	WURTH, HILTI, TYROLIT, FISCHER, Klimas
69.	EPDM sheet	Fire stone, Carlisle, DBS
70.	Cubical	Marino, Perfect Ceiling

**Note:** CE, CCU, MoEF&CC, New Delhi reserves the right to add or delete any materials and Brands in the list of approved / acceptable materials / brands.

**GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATERPROOFING WORKS**

This agreement made this..... day of ..... Two Thousand..... between M/s ..... (hereinafter called the GUARANTOR on the one part) and the PRESIDENT OF INDIA (hereinafter called the Government on the other part)

WHEREAS THIS agreement is supplementary to a Contract No.....dated ..... (Hereinafter called the Contract) and made between the GUARANTOR on the one part and the Government on the other part whereby the contractor inter alia undertook to render the building and structures in the said contract completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain water and leak proof, for **Ten Years** from the date of completion of the work under the contract.

NOW THE GUARANTOR hereby guarantee that work executed by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be **Ten years** to be reckoned from the date of completion of the work under 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 nature and cause of defect 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 calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

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

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

SIGNED, sealed and delivered by OBLIGATOR in the presence of:

- 1. ....
- 2. ....

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

- 1. ....
- 2. ....

**GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF SANITARY INSTALLATIONS & WATER SUPPLY WORKS.**

This agreement made this..... day of ..... Two Thousand..... between M/s .....(hereinafter called the GUARANTOR on the one part) and the PRESIDENT OF INDIA (hereinafter called the Government on the other part)

WHEREAS THIS agreement is supplementary to a Contract No. ....dated .....(Hereinafter called the Contract)and made between the GUARANTOR on the one part and the Government on the other part whereby the contractor inter alia undertook to render the **sanitary installations & water supply works** water tight and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain water tight and leak proof, for **Five Years** from the date of completion of the work under the contract.

NOW THE GUARANTOR hereby guarantee that work executed by him will render completely water tight leak proof and the minimum life of such **sanitary installations & water supply works** water tight and leak-proof shall be **Five years** to be reckoned from the date of completion of the work under the contract.

Provided that the guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse. The decision of the Engineer-in-Charge with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer-in-Charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

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

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

SIGNED, sealed and delivered by OBLIGATOR in the presence of:

1. .... 2. ....

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

1. .... 2. ....

**GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF FIRE CHECK DOORS AND STRUCTURAL GLAZING WORKS**

This agreement made this..... day of ..... Two Thousand.....between .....M/s.....(hereinafter called the GUARANTOR on the one part) and the President of India (hereinafter called the Government on the other part)

WHEREAS THIS agreement is supplementary to a Contract No. .... dated ..... (Hereinafter called the Contract) and made between the GUARANTOR ON THE ONE PART AND the Government on the other part whereby the contractor inter alia undertook to render the work in the said contract structurally stable, workmanship, finishing and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain structurally stable and guaranteed against faulty workmanship, finishing and materials for **five years** to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

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

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

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

IN WITNESS WHEREOF these presents have been executed by the obligator .....

and ..... by .....for and on behalf of the President of India on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of:

1. .... 2. ....

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

1. .... 2. ....

**TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION  
IN RESPECT OF STRUCTURAL GLAZING/CLADDING WORKS.**

The agreement made this \_\_\_\_\_ day of \_\_\_\_\_ Two Thousand and \_\_\_\_\_  
Between \_\_\_\_\_ son of \_\_\_\_\_ of \_\_\_\_\_  
(hereinafter called the Guarantor of the one party) and the **PRESIDENT OF INDIA**  
(hereinafter called the Government of the other party).

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

**AND WHEREAS THE GUARANTOR** agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty workmanship, finishing and unsound materials and other related problems.

**NOW THE GUARANTOR** here by guarantee that work executed by him will remain structurally stable after the expiry of maintenance period prescribed in the contract for the **minimum life of five years (05)** to be reckoned from the date after expiry of maintenance period prescribed in the contract.

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

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

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

**INWITNESS WHERE OF** these presents, have been executed by the obligator and \_\_\_\_\_ by \_\_\_\_\_ for and on behalf of the **PRESIDENT OF INDIA** on the day, month and year first above written.

**SIGNED**, sealed and delivered by **OBLIGATOR** in the presence of:

1. \_\_\_\_\_
2. \_\_\_\_\_

**SIGNED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY**

\_\_\_\_\_ in the presence of:

1. \_\_\_\_\_
2. \_\_\_\_\_

**TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION  
IN RESPECT OF uPVC DOOR/WINDOWS/VENTILATOR WORKS & ALUMINUM WORKS**

The agreement made this \_\_\_\_\_ day of \_\_\_\_\_ Two Thousand and \_\_\_\_\_  
Between \_\_\_\_\_ son of \_\_\_\_\_ of \_\_\_\_\_  
(hereinafter called the Guarantor of the one party) and the **PRESIDENT OF INDIA**  
(hereinafter called the Government of the other party).

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

**AND WHEREAS THE GUARANTOR** agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty workmanship, finishing and unsound materials and other related problems.

**NOW THE GUARANTOR** here by guarantee that work executed by him will remain structurally stable after the expiry of maintenance period prescribed in the contract for the **minimum life of five years (05)** to be reckoned from the date after expiry of maintenance period prescribed in the contract.

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

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

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

**INWITNESS WHERE OF** these presents, have been executed by the obligator and \_\_\_\_\_ by \_\_\_\_\_ for and on behalf of the **PRESIDENT OF INDIA** on the day, month and year first above written.

**SIGNED**, sealed and delivered by **OBLIGATOR** in the presence of:

1. \_\_\_\_\_
2. \_\_\_\_\_

**SIGNED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY**

\_\_\_\_\_ in the presence of:

1. \_\_\_\_\_
2. \_\_\_\_\_

**TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION  
IN RESPECT OF BITUMINOUS LAYERS OF ROAD WORK.**

The agreement made this \_\_\_\_\_ day of \_\_\_\_\_ Two Thousand and \_\_\_\_\_  
Between \_\_\_\_\_ son of \_\_\_\_\_ of \_\_\_\_\_  
(hereinafter called the Guarantor of the one party) and the **PRESIDENT OF INDIA**  
(hereinafter called the Government of the other party).

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

**AND WHEREAS THE GUARANTOR** agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty workmanship, finishing and unsound materials and other related problems.

**NOW THE GUARANTOR** here by guarantee that work executed by him will remain structurally stable after the expiry of maintenance period prescribed in the contract for the **minimum life of five years (05)** to be reckoned from the date after expiry of maintenance period prescribed in the contract.

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

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

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

**INWITNESS WHERE OF** these presents, have been executed by the obligator and \_\_\_\_\_ by \_\_\_\_\_ for and on behalf of the **PRESIDENT OF INDIA** on the day, month and year first above written.

**SIGNED**, sealed and delivered by **OBLIGATOR** in the presence of:

1. \_\_\_\_\_
2. \_\_\_\_\_

**SIGNED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY**

\_\_\_\_\_ in the presence of:

1. \_\_\_\_\_
2. \_\_\_\_\_



**On Non-Judicial stamp paper of minimum Rs. 100**  
(Guarantee offered by Bank to CPWD in connection with the execution of contracts)  
**Form of Bank Guarantee for Earnest Money Deposit /performance**  
**Guarantee/Security Deposit/Mobilization Advance**

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

OR\*\*

Whereas the Executive Engineer..... (name of division) .....CPWD on behalf of the President of India (hereinafter called "The Government,") has entered into an agreement bearing number..... with .....(name and address of 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.

2. We, ..... (indicate the name of the bank)..... (herein after referred to as "the Bank"), hereby undertake to pay to the Government an amount not exceeding Rs,.....,(Rupees ..... only) on demand by the Government within 10 days of the demand.

3. We, ..... (indicate the name of the Bank)..... ,do 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).

4. We, ..... (indicate the name of the Bank)..... , further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the contractor shall have no claim against us for making such payment.

5. We, ..... (indicate the name of the Bank)..... , further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

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

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

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

9. This Bank Guarantee shall be valid up to.....unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs.....(Rupees .....only) and unless a claim in writing is lodged with us within the date of



# **(SCHEDULE OF** **QUANTITIES**

<b>Schedule of Quantity</b>					
<b>Name of work :- Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)</b>					
<b>SLNo</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>
<b>1</b>	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.				
<b>(a)</b>	All kinds of soil	<b>409.00</b>	<b>cum</b>	<b>149.00</b>	<b>60941.00</b>
<b>2</b>	Excavating trenches by mechanical / manual means of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, 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 :				
<b>(a)</b>	All kinds of soil				
<b>(i)</b>	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	<b>260.00</b>	<b>metre</b>	<b>294.40</b>	<b>76544.00</b>
<b>3</b>	Providing and laying in position excluding cement concrete of level: specified grade the cost of centering and shuttering - All work up to plinth				
<b>(a)</b>	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)	<b>2.00</b>	<b>cum</b>	<b>7365.15</b>	<b>14730.00</b>
<b>(b)</b>	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources: 8 graded stone aggregate 40 mm nominal size derived from natural sources)	<b>118.00</b>	<b>cum</b>	<b>6326.05</b>	<b>746474.00</b>

<b>4</b>	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
<b>(a)</b>	Thermo-Mechanically Treated bars of grade Fe-500D or more.	<b>3010.00</b>	<b>kg</b>	<b>89.65</b>	<b>269847.00</b>
<b>5</b>	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
<b>(a)</b>	Cement mortar 1:6(1 cement :6 coarse sand)	<b>69.00</b>	<b>cum</b>	<b>6658.25</b>	<b>459419.00</b>
<b>6</b>	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.				
<b>(a)</b>	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	<b>4922.00</b>	<b>kg</b>	<b>142.30</b>	<b>700401.00</b>
<b>7</b>	Providing and laying leather finish 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 :				
<b>(a)</b>	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	<b>252.00</b>	<b>sqm</b>	<b>2589.90</b>	<b>652655.00</b>
<b>8</b>	12 mm cement plaster of mix:				
<b>(a)</b>	1:6(1 cement: 4 coarse sand)	<b>38.00</b>	<b>sqm</b>	<b>294.35</b>	<b>11185.00</b>
<b>9</b>	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earthwith lead upto 50 metres.	<b>217.00</b>	<b>sqm</b>	<b>180.50</b>	<b>39169.00</b>

<b>10</b>	Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.	<b>996.00</b>	<b>sqm</b>	<b>951.00</b>	<b>947196.00</b>
<b>11</b>	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 to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer- in-charge (length of finished kerb edging shall be measured to calculate volume for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	<b>11.00</b>	<b>cum</b>	<b>8613.55</b>	<b>94749.00</b>
<b>12</b>	Providing and laying C.C. pavement of mix M-30 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 @ 350 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately).	<b>43.00</b>	<b>cum</b>	<b>8964.00</b>	<b>385452.00</b>
<b>13</b>	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				
<b>(a)</b>	50 mm dia nominal bore	<b>75.00</b>	<b>metre</b>	<b>893.20</b>	<b>66990.00</b>
<b>14</b>	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. External work				
<b>(a)</b>	50 mm dia nominal bore	<b>150.00</b>	<b>metre</b>	<b>654.20</b>	<b>98130.00</b>
<b>15</b>	Painting G.I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work :				

(a)	50 mm diameter pipe	75.00	metre	25.25	1894.00
16	Providing and filling sand of grading zone V or coarser grade, allround the G.I. pipes in external work :				
(a)	50 mm diameter pipe	150.00	metre	176.90	26535.00
17	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 :				
(a)	250 mm dia. R.C.C. pipe	260.00	metre	811.15	210899.00
18	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 : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :				
(a)	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) :				
(i)	With Sewer bricks conforming to IS : 4885	25.00	each	11567.00	289175.00
(b)	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) :				
(i)	With Sewer bricks conforming to IS : 4885	5.00	each	24077.30	120387.00
	<b>Total</b>				<b>5272772.00</b>
	<b>Add@ 6.33% GST</b>				<b>333766.00</b>
	<b>Total</b>				<b>5606538.00</b>

Assistant Engineer (P)  
CED-II, CCU

Executive Engineer  
CED-II, CCU

# PART-C

**SCHEDULE 'A' TO 'F' FOR MINOR COMPONENT OF THE  
WORK GENERAL/SPECIFIC CONDITIONS,  
SPECIFICATIONS AND SCHEDULE OF QUANTITIES  
APPLICABLE TO MINOR COMPONENT OF THE  
ELECTRICAL WORK.**



## SCHEDULE E – ‘A’ to ‘F’ FOR THE WORK (ELECTRICAL WORK)

### **SCHEDULE ‘A’**

Schedule of Quantities

Page No. as per sheet attached.

### **1) SCHEDULE ‘B’**

Schedule of materials to be issued to the contractor:

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

### **2) SCHEDULE ‘C’**

Schedule of Tools and Plants to be hired to the contractor:

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

### **3) SCHEDULE ‘D’**

Extra schedule for specific requirements/document for the work, if any:	As per tender documents
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### **SCHEDULE ‘E’**

Reference to General Conditions of contract:	As per “Part- A (Civil work)” of NIT
Name of Work:	CONSTRUCTION OF NEW HOSTEL BLOCK (G+2) FOR IGNFA AT FRI CAMPUS, DEHRADUN SH: DEVELOPMENT WORK OF NEW HOSTEL BLOCK-A AT IGNFA, DEHRADUN. (TAKEN OUT OF MAIN WORK)
Estimated cost of the work:	As per “Part- A (Civil work)” of NIT
Earnest money	As per “Part- A (Civil work)” of NIT
Performance Guarantee	5% (Three percent) of accepted tendered amount
Security Deposit	2.5% (Two Point Five percent) of accepted tendered amount.

### **SCHEDULE ‘F’**

General rules and direction

Officer inviting tender	As per “Part- A (Civil work)” of NIT
Maximum percentage of quantity of items of work to be executed beyond which rates are to be determined in accordance with Clause 12.2 & 12.3	As per “Part- A (Civil work)” of NIT

**Definitions:**

2(v)	Engineer-in-Charge :	Executive Engineer (E), CCU, MoEF&CC or his successor-in-charge of work.
2(vii)	Accepting Authority :	Executive Engineer, (E) CCU, MoEF&CC or his successor in charge of work.
2(x)	Percentage on cost of materials and labour to cover all overheads and profits :	7.5% for items of supply of materials and 15% for other Items
2(xi)	Standard Schedule of Rates:	
	Electrical Items of Work:	DSR (E&M) 2022 with correction slips issued upto 19.05.2023 & Market rates.
2(xii)	Department:	CCU, MoEF&CC
2(xiii)	Standard CPWD contract Form:	As per "Part- A (Civil work)" of NIT

<b>Clause 1</b>		
i)	Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance	As per "Part- A (Civil work)" of NIT
ii)	Maximum allowable extension with late fee @0.1% per day of Performance Guarantee amount beyond the period as provided in i) above	As per "Part- A (Civil work)" of NIT
<b>Clause 2</b>	Authority for fixing Compensation under Clause 2	As per "Part- A (Civil work)" of NIT
<b>Clause 5</b>	Number of days from the date of issue of letter of intent for reckoning date of start	As per "Part- A (Civil work)" of NIT

**Mile stones as per table given below**

Sl. No.	Description of mile stone (s) (Physical)	Time allowed (From date of start)	Amount to be withheld in case of Non-achievement of each physical Mile stone(s)
As per Part 'A' of NIT			

Time allowed for execution of work: As per "Part- A (Civil work)" of NIT

Authority to decide:

i	Extension of time	:	As per "Part- A (Civil work)" of NIT
ii	Rescheduling of mile stones	:	As per "Part- A (Civil work)" of NIT
iii	Shifting of date of start in case of delay in handing over of site	:	As per "Part- A (Civil work)" of NIT

**Clause 5.4**

Schedule of rate of recovery for delay in submission of the modified programme in terms of delay days.

Sl. No.	Contract Value	Recovery per day (Rs.)
As per "Part- A (Civil work)" of NIT		

**Clause 6/6A** : As per "Part- A (Civil work)" of NIT

<b>Clause 7</b>		
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	:	As per "Part- A (Civil work)" of NIT
<b>Clause 7A</b>		
Whether clause 7A shall be applicable	:	<b>Yes, Applicable</b>

**Clause 8 A: Completion plans to be submitted by the contractor**

Authority to decide compensation on account if contractor fails to submit completion plans	Executive Engineer (E), CCU, MoEF&CC or his successor-in-charge of work.
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**Clause 10 A**

List of testing equipment to be provided by the contractor at site lab -  
Micro meter (least count 0.01 mm), earth tester, tong tester, multi meter, LT meger, lux meter,

<b>Clause 10B (ii)</b>	
Whether Clause 10 B (ii) shall be applicable	No

**Clause 10 C**

Whether Clause 10 C shall be applicable	Not Applicable
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**Clause 10 CA**

S No	Materials covered under this clause	Nearest materials (other than cement, reinforcement bars, structural steel and POL) for which All India Wholesale Price Index to be followed	Base Price of materials covered under clause 10 CA
- NIL -			

**Clause 10 Cc**

<b>Clause 10 CC</b>	As per Part 'A' of NIT
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<b>Clause 11</b>		
Specifications to be followed for execution of work	CPWD Specifications for Electrical Work. Part-I (internal) 2013, Part-II (external) 1995, Part-IV (Substations) 2013, <del>Part-V (Wet riser) &amp; sprinkler system) 2020,</del> Part-VI (Fire alarm system) 2018, Part-VIII (Gas based fire extinguisher system) 2013 and as amended up to correction slips till date.	
<b>Clause 12</b>		
12.2. & 12.3	Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work.	As per "Part- A (Civil work)" of NIT

12.5	i) Deviation limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work sub head in DSR and related items)	As per "Part- A (Civil work)" of NIT
	ii) Deviation limit for items mentioned in earth work sub head of DSR and related items	As per "Part- A (Civil work)" of NIT
<b>Clause 16</b>		
Competent authority for deciding reduced rates		As per "Part- A (Civil work)" of NIT

### Clause 18

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

S No.	Machinery and T & P	Min. Requirement
1	Chase cutter	As per requirement
2	Drill machine	As per requirement
3	Earth tester	1 No.
4	HT Megger	1 No.
5	LT Megger	1 No.
6	Vernier Caliper / Micro meter	1 set

### Clause 19

<b>Clause 19 C</b>	Authority to decide penalty for each default	Executive Engineer (E),CCU, MoEF&CC or his successor-in-charge of work.
<b>Clause 19 D</b>	Authority to decide penalty for each default	Executive Engineer (E),CCU, MoEF&CC or his successor-in-charge of work.
<b>Clause 19 G</b>	Authority to decide penalty for each default	Executive Engineer (E),CCU, MoEF&CC or his successor-in-charge of work.

### Clause 25

**Conciliation and Arbitration -** As per "Part- A (Civil work)" of NIT

### Clause 36 : Requirement of Technical Representative(s) and Recovery Rate

Sl. No.	Minimum Qualification of Technical Representative	Discipline	Designation	Minimum experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 32 per person	
						Figures (Rs. Per person)	Words (Rs. Per person)
1	As per "Part- A (Civil work)" of NIT						

- 1) Engineer(s) deployed as per stipulation in the contract looks after only the work under contract and no other work and is available fully during execution of work.
- 2) Even if contractor (or partner in case of firm/company) is himself/herself an Engineer, it is necessary on part of contractor to employ Engineer(s) for the supervision of the work as per stipulation.

**Clause 38**

i)	Schedule/statement for determining theoretical quantity	NIL
ii)	Variations permissible on theoretical quantities	NIL

***RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION***

S. No.	Description of item	Rates at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	Less use beyond permissible variation
NIL			

### **Eligibility criteria for specialized E & M Works**

The Composite category contractor is also being eligible to carry out himself/herself ~~Substation, DG set work, Fire Fighting System, Fire Alarm PA system work, EPBX, LAN, CCTV, LIFT & STP~~ without associating any specialized agency/Manufacturer/OEMs/Approved and eligible CPWD agency provided:

(a) He fulfills the prescribed eligibility criteria respectively for these work(s) as mentioned below.

**OR**

(b) He directly procures the equipment of approved make from manufacturer and gets it installed from authorized agency/service provider of the manufacturer or specialized agency as per criteria mentioned in NIT.

Otherwise he has to associate the agency fulfilling the prescribed eligibility criteria as mentioned below:-

#### **Eligibility Criteria for DG set work:**

~~Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.~~

~~Three similar works each costing not less than Rs. 6.95 Lacs~~

~~OR~~

~~Two similar works each costing not less than Rs. 10.43 Lacs~~

~~OR~~

~~One similar works each costing not less than Rs. 13.91 Lacs~~

~~Similar work shall mean SITC of DG Set of capacity not less than 160 KVA.~~

~~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 bids.~~

#### **Eligibility Criteria for Substation Work:**

~~Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.~~

~~Three similar works each costing not less than Rs. 20.76 Lacs~~

~~OR~~

~~Two similar works each costing not less than Rs. 31.15 Lacs~~

~~OR~~

~~One similar works each costing not less than Rs. 41.53 Lacs~~

~~Similar work shall mean SITC of Substation Work of capacity not less than 250KVA.~~

~~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 bids.~~

#### **Eligibility Criteria for Firefighting Work:**

~~Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.~~

~~Three similar works each costing not less than Rs. 11.31 Lacs~~

~~OR~~

~~Two similar works each costing not less than Rs. 16.96 Lacs~~

OR

~~One similar works each costing not less than Rs. 22.62 Lacs~~

~~Similar work shall mean SITC of Fire Fighting 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 bids.~~

**Eligibility Criteria for Fire Alarm & PA system Work:**

Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.09.2024.

Three similar works each costing not less than Rs. 0.63 Lacs

OR

Two similar works each costing not less than Rs. 0.94 Lacs

OR

One similar works each costing not less than Rs. 1.25 Lacs

Similar work shall mean SITC of Fire Alarm/ PA System 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 bids.

**Eligibility Criteria for EPABX System:**

Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.09.2024.

Three similar works each costing not less than Rs. 4.03 Lacs

OR

Two similar works each costing not less than Rs. 6.05 Lacs

OR

One similar works each costing not less than Rs. 8.07 Lacs

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 bids.

**Eligibility Criteria for LIFT System:**

~~Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.~~

~~Three similar works each costing not less than Rs. 9.85 Lacs~~

~~OR~~

~~Two similar works each costing not less than Rs. 14.77 Lacs~~

~~OR~~

~~One similar works each costing not less than Rs. 19.70 Lacs~~

~~Similar work shall mean SITC of Lift Work of capacity not less than 8 passengers.~~

~~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 bids.~~

**Eligibility Criteria for LAN System:**

Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.

Three similar works each costing not less than Rs. 6.24 Lacs

OR

Two similar works each costing not less than Rs. 9.35 Lacs

OR

One similar works each costing not less than Rs. 12.47 Lacs

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 bids.

**Eligibility Criteria for CCTV System:**

~~Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.~~

~~Three similar works each costing not less than Rs. 6.71 Lacs~~

~~OR~~

~~Two similar works each costing not less than Rs. 10.07 Lacs~~

~~OR~~

~~One similar works each costing not less than Rs. 13.43 Lacs~~

~~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 bids.~~

**Eligibility Criteria for STP System:**

~~Agency should have satisfactorily completed the similar works as mentioned below during the last 7 years ending on 30.04.2023.~~

~~Three similar works each costing not less than Rs. 9.30 Lacs~~

~~OR~~

~~Two similar works each costing not less than Rs. 13.94 Lacs~~

~~OR~~

~~One similar works each costing not less than Rs. 8.95 Lacs~~

~~Similar work shall mean SITC of STP Work of capacity not less than 45 KLD.~~

~~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 bids.~~



## **ADDITIONAL CONDITIONS FOR ELECTRICAL WORKS**

### **A. General Commercial & Technical Conditions:**

- 1.0 All the works shall be carried out as per CPWD Specifications for Electrical Work. Part-I (internal) 2013, Part-II (external) 1995, Part-IV (Substations) 2013, Part-V (Wet riser) & sprinkler system) 2020, Part-VI (Fire alarm system) 2018, Part-VIII (Gas based fire extinguisher system) 2013 and as amended up to correction slips and should also comply with relevant provisions of the Indian Electricity Rules and Acts as applicable, amended up to date.
- 2.0 The contractor is advised to visit the site of work to have an idea of the execution of the work; failure to do so shall not absolve their responsibility to do the work as specified in agreement.
- 3.0 **Rates:**
  - 3.1 The work shall be treated as on works contract basis and the rates tendered shall be for complete items of work (except the materials, if any, stipulated for supply by the department) inclusive of all taxes (including GST), duties, and levies etc. and all charges for items contingent to the work, such as packing, forwarding, insurance, freight and delivery at site for the materials to be supplied by the contractor, watch and ward of all materials (including those supplied by the department, if any) for the work at site etc
- 4.0 **Taxes and Duties:**
  - 4.1. Being an indivisible works contract, any taxes (including GST), duties, and levies etc. are not payable separately.
  - 4.2. The Goods and service tax (GST) shall be deducted from the bills of the contractor as applicable in the State in which the work is carried out, at the time of payments.
- 5.0 **Mobilization Advance:**

No mobilization advance shall be paid for the work, unless otherwise stipulated in tender papers for any individual works/ composite work.
- 6.0 **Completeness of Tender:**

All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the tender, whether such items are specifically mentioned in the tender documents or not.
- 7.0 **Works to be arranged by the department:**

Unless and otherwise specified in the tender documents, the following works shall be arranged by the Department:

  - a) Supply of materials to the contractor if stipulated in the tender documents.
- 8.0 **Works to be done by the contractor:**

Unless and otherwise mentioned in the tender documents, the following works shall be done by the contractor, and therefore their cost shall be deemed to be included in their tendered cost:-

  - a) Foundations for equipments and components where required, including foundation bolts.
  - b) Cutting and making good all damages caused during installation and restoring the same to their original finish.
  - c) Sealing of all floor openings provided by him for pipes and cables, from fire safety point of view, after laying of the same.
  - d) Painting at site of all exposed metal surfaces of the installation other than pre-painted items like fittings, fans, switchgear/distribution gear items, cubical switchboard etc. Damages to finished surfaces of these items while handling and erection, shall however be rectified to the satisfaction of the Engineer-in-Charge.

- e) Testing and commissioning of completed installation.
- f) Storage space for all equipments, components and materials at site for the work

#### 9.0 Storage and Custody of Materials:

The contractor has to make his own arrangement for the storage of the material at site & necessary watch and ward of the electrical installation during the execution of work till the same is handed over to the department. No extra payment will be made on this account. The storage space shall however be arranged by the department at site, if available.

The main contractor shall arrange for proper storage of all electro-mechanical equipments and electrical materials including fans and fittings at site and that double lock system shall be arranged for the fans and fittings after receipt at site until the time they are taken for installation. The contractor shall however be responsible for proper storage and safe custody of the same till their installation and handing over to the department.

#### 10.0 Electric Power Supply and Water Supply:

Power and water supply will be arranged by the contractor at the site for installation purpose.

#### 11.0 Tools for handling and Erecting:

All tools and tackles required for handling of equipment's 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.

#### 12.0 Payment Terms:

The following percentage of contract rates for the items shall be payable against the stage of work shown herein:

- a) 60% of the tendered value on initial inspection and delivery of materials at site in good condition on pro-rata basis.
- b) 25% on completion of installation of the equipment's and accessories on pro-rata basis.
- c) 15% on testing on commissioning and completion of successful running and handover to the department.

#### 13.0 Co-ordination with other agencies:

The contractor shall co-ordinate with all other agencies involved in the building work so that the building work is not hampered due to delay in his work. Recessed conduit and other works, which directly affect the progress of building work, should be given priority.

#### 13.1. Care of buildings:

Care shall be taken by the contractor to avoid damage to the building during execution of his part of the work. 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 costs, all unwanted and waste materials arising out of his work, from the site.

#### 14.0 Structural Alterations to Buildings:

- a) No structural member in the building shall be damaged/altered, without prior approval from the competent authority through the Engineer-in-charge.
- b) Structural provisions like openings, cutouts, if any, provided by the department for the work, shall be used. Where these required modifications, or fresh provisions are required to be made, such contingent works shall be carried out by the contractor at his cost.
- c) All such openings in floors provided by the department shall be closed by the contractor after installing the cables/conduits/rising mains etc. as the case may be, by any suitable means as approved by the Engineer-in-charge without any extra payment.
- d) All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings.

#### 15.0 Addition to an installation:

Any addition, temporary or permanent, to the existing electrical installation shall not be made

without a properly worked out scheme/design by a qualified Electrical Engineer to ensure that such addition does not lead to overloading, safety violation of the existing system.

#### 16.0 Work in occupied buildings:

- a) When work is executed in occupied buildings, there would be minimum of inconvenience to the occupants. The work shall be programmed in consultation with the Engineer-in-charge and the occupying department. If so required, the work may have to be done even before and after the office hours.
- b) The contractor shall be responsible to abide by the regulations or restrictions set in regard to entry into, and movement within the premises.
- c) The contractor shall not tamper with any of the existing installations including their switching operations or connections there to without specific approval from the Engineer-in-charge.

#### 17.0 Drawings:

- a) The work shall be carried out in accordance with the drawings and the tender documents and also in accordance with modification thereto from time to time as approved by Engineer-in-charge.
- b) All wiring diagrams shall be deemed to be Drawings within the meaning of the term as used in Clause 11 of the conditions of contract (PWD 7 or PWD 8). They shall indicate the main switch board, the distribution boards (with circuit numbers controlled by them), the runs of various mains and sub mains and the position of all points with their controls.
- c) After award of the work, the firm will be required to submit the shop drawings for the proposed work including layout plan, conduit routes showing location of points and height etc. and submitted for approval, Work will be carried out as per the approved drawings before start of work.

#### 18.0 Conformity to IE act, IE Rules, and standards:

- 18.1. All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 1910 and Indian Electricity Rules, 1956 amended up to date (Date of call of tender unless specified otherwise). List of rules of particular importance to electrical installations under these General Specifications is given in Appendix C for reference.

#### 19.0 General requirements of components:

- 19.1. **Quality of material:** All materials and equipments supplied by the contractor shall be new. They shall be of such design, size and materials as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site.

#### 20.0 Inspection of materials and equipment's:

- 20.1. Materials and equipment's to be used in the work shall be inspected by the departmental officers. Such inspection will be of following categories:
  - a) Inspection of materials / equipment's to be witnessed at the Manufacturer's premises in accordance with relevant BIS/Agreement Inspection Procedure.
  - b) To receive materials at site with Manufacturer's Test Certificate(s)
  - c) To inspect materials at the authorized dealer's go downs to ensure delivery of genuine materials at site.
  - d) To receive materials after physical inspection at site.
- 20.2. 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:
  - a) Material will be ordered & delivered at site only with the prior approval of the department to ensure timely delivery.
  - b) The agency should approved TDS of material from Engineer-in-Charge before actual brought at site. As and when the order is placed for the fittings/ fixtures, cables, switchgears, poles, rising main, other main items etc, its copy shall be endorsed to the Engineer-in-charge.

- c) The firm will be required to procure material like exhaust fans, MCB's & DB's, switches & sockets, wires & cables, conduits and switchgears etc directly from the manufacturer/ authorized dealers to ensure genuineness & quality and as per the approved makes only. Proof in this regard shall be submitted by the contractor before installation at site to the department.
  - d) Inspection at factory or at godown of the manufacturer, as required, shall be arranged by the firm for a mutually agreed date. Certificate for genuineness of the fittings shall have to provided duly signed by the manufacturer's officer not below the rank of Regional Manager.
  - e) Delivery of material shall be taken up only with the consent of department, after clearance of the material.
  - f) Department shall reserve the right to waive inspection in lieu of suitable test certificate, at its discretion.
- 20.3. Similarly, for fabricated equipments, the contractor will first submit dimensional detailed drawings for approval before fabrication is taken up in the factory. Suitable stage inspection at factory also will be made to ensure proper use of materials, workmanship and quality control.

#### 21.0 Ratings of components:

- 21.1. All components in a wiring installation shall be of appropriate ratings of voltage, current and frequency, as required at the respective sections of the electrical installations in which they are used.
- 21.2. All conductors, switches and accessories shall be of such size as to be capable of carrying the maximum current, which will normally flow through them, without their respective ratings being exceeded.

#### 22.0 Conformity to standards:

- 22.1. All components shall confirm to relevant Indian Standard Specifications wherever existing. Materials with ISI certification mark will be preferred.
- 22.2. Relevant Indian Standards including amendments or revisions thereof up to the date of tender acceptance shall be applicable in the respective contracts for respective items, firm to ensure its compliance.

#### 23.0 Inter changeability:

Similar parts of all switches, lamp holders, distribution fuse boards, Switch gears, ceiling roses, brackets, pendants, fans and all other fittings of the same type shall be interchangeable in each installation.

#### 24.0 Workmanship:

- 24.1. Good workmanship is an essential requirement to be complied with. The entire work of manufacture/fabrication, assembly and installation shall confirm to sound engineering practice.
- 24.2. Proper supervision/skilled workmen: The contractor shall be a licensed electrical contractor suitable for execution of the electrical work. He shall engage suitably skilled/licensed workmen of various categories for execution of work supervised by supervisors / Engineer of appropriate qualification and experience to ensure proper execution of work. They will carry out instruction of Engineer-in-charge and other senior officers of the Department during the progress of work.
- 24.3. Use of quality materials: Only quality materials of reputed make as specified in the tender will be used in work.
- 24.4. Fabrication in reputed workshop: Switch boards and LT panels shall be fabricated in a factory/workshop having modern facilities like quality fabrication, seven tank process, powder/epoxy paint plant, proper testing facilities, manned by qualified technical personnel. These shall be as per make / item approved.
- 24.5.

#### 25.0 Testing:

All testes prescribed in this General Specification, to be done before, during and after installation, shall be carried out, and the test results shall be submitted to the Engineer-in-charge in prescribed Performa, forming part of the Completion Certificate.

#### 26.0 Commissioning on completion:

After the work is completed, it shall be ensured that the installation is tested and commissioned.

#### 27.0 Completion plan and completion certificate:

27.1. For all works completion certificate after completion of work shall be submitted to the Engineer-in-charge.

27.2. Completion plan drawn to a suitable scale (It shall be laminated if desired by the Site-in-Charge) indicating the following, and three copies of the same shall also be submitted.

- a) General layout of the building.
- b) Locations of main switchboard and distribution boards, indicating the circuit numbers controlled by them.
- c) Position of all points and their controls.
- d) Types of fittings, viz. fluorescent, pendants, brackets, bulk head, fans, exhaust fans etc.
- e) Name of work, job number, tender reference, actual date of completion, names of Division/ Sub-division and name of the firm who executed the work with their signature.
- f) Cable layout showing general distribution diagram along with position of cable joints, if any.

#### 28.0 Guarantee

The installation will be handed over to the department after necessary testing and commissioning. The installation will be guaranteed against any defective design/workmanship. Similarly, the materials supplied by the contractor will be guaranteed against any manufacturing defect or inferior quality. The guarantee period will be for a period of 12 months from the date of handing over to the department or recording of completion certificate by the engineer-in-charge and acceptance by the competent authority whichever is later. Installation/ equipments or components thereof shall be rectified/ repaired to the satisfaction of the Engineer-in-charge at his own cost and nothing extra will be paid to the contractor on this account. The firm will be required to submit guarantee of material from the manufacturer to the department.

Note: The quantity of material in the BOQ is indicative. Contractor has to assess the actual requirement of material at site before placing the order, keeping in view the drawing and site requirement. No claim for payment for unused excess material shall be entertained.

## **B. SPECIAL CONDITIONS FOR ELECTRICAL WORKS**

- 1) These Special Conditions of Contract shall be read in conjunction with the other documents forming part of the contract. In any case of any discrepancy, the order of preference shall be as under:-
  - a) Nomenclature of the item as per schedule of quantities.
  - b) General/ Additional conditions attached with the contract document.
  - c) Additional Specifications attached with the contract document.
  - d) Drawings.
  - e) CPWD Specifications with correction slips upto last date of submission of bids.
  - f) BIS Specifications.
  - g) Manufacturer's specifications.
  - h) Decision of the Engineer-in-Charge.
  - i) Sound Engineering practices.
- 2) Unless specifically mentioned otherwise all the relevant codes & standards published by the Bureau of India Standards before the acceptance of the contract shall apply and govern in respect of design, workmanship, quality and properties of materials, testing and measurements.
- 3) The contractor shall organize his operations in a workman like manner and take all necessary precautions to provide safety and prevent accidents on the site to both person and property, more so if they will be working in proximity to working machinery of existing plants in operation.
- 4) The Owner shall have the power in requiring the contractor to adopt from time to time such measures as they may consider necessary to ensure the above requirements. The Owner shall not be responsible for any consequence resulting from violation of safety requirements. In particular the Contractor shall ensure compliance with the all necessary safety codes.
- 5) All duties, taxes (including GST), octroi, turnover tax etc. shall be borne by the contractor.
- 6) Latest relevant BIS specifications shall govern this contract and work shall be carried out strictly in accordance of these.
- 7) Time is the essence of this contract. The contractor is expected to work in more than one shift. Nothing extra shall be paid for the same.
- 8) The Contractor must submit a Time Schedule as per conditions of NIT. The same shall be reviewed during the time of execution. Suitable amendments shall be made in the work programme if in the opinion of the Engineer-In-Charge the progress of the work is not satisfactory. Nothing extra shall be paid for the same.
- 9) In case the contractor fails to match the progress of the work to the programme approved by the Engineer-In-Charge, the department reserves the right to get the complete or a portion of the work executed by any other agency at the risk of the contractor.
- 10) The department shall not provide any equipment/machine required for any of the operation as described in the drawings, schedule of quantity, specifications etc.
- 11) The contractor must get acquainted with the proposed site of the work and the specifications and conditions carefully before tendering. The work shall be executed as per programme approved by the Engineer-In-Charge. If part of site is not available for any reason or there is some unavoidable delay in supply of materials stipulated by the Owner, the programme of

execution shall be modified accordingly and the contractor shall have no claim for any extras or compensation on this account of delays or work in odd hours.

- 12) The architectural and other drawings shall, at all times, be properly correlated for executing any work. After taking measurements at site. Samples shall be prepared for approval before starting any items of work specified by the Engineer-In-Charge. The Contractor shall prepare the fabrication /shop drawings on existing & proposed services of works.
- 13) Rates quoted for the items in all individual sections shall be valid for carrying out the items of work at any place, any level and at any height.
- 14) Collection and stacking of materials shall include all leads. The rates quoted by the contractor shall hold good irrespective of the source from which the materials are brought so long as they conform to the specifications and as approved by the Engineer-In-Charge.
- 15) The drawings referred to in the tender documents are available for inspection to the intending tenderers in the office of the Engineer-In-Charge. Tenderer's shall inspect the same and acquaint themselves with the work to be executed. The contractor shall have no claim or reference to these drawings in respect of any of the rates after acceptance of the tender.
- 16) Samples of various materials required for testing shall be provided free of charges by contractor. All expenditure required to be incurred for taking the sample, conveyance, packing, sealing, loading, unloading etc. shall be borne by the contractor himself.

The materials shall be got tested by the Engineer-in-charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge the samples of materials required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor / Department in the manner indicated below (except otherwise mentioned in the contract):

- (a) By the contractor, if the results show that the material does not conform to relevant BIS codes.
  - (b) By the Department, if the results show that the material conforms to relevant BIS codes.
- 17) The work have to be executed in shifts and all necessary arrangements are to be made by the contractor & nothing extra shall be claimed for the by the Contractor.
  - 18) It should be carefully noted that numerous agencies will be working in the project simultaneously and the contractor shall have to work at every stage in close coordination with each of these agencies. He shall have to programme his work accordingly in consultation with other agencies as per sequential requirements as may be decided by the CCU and Client or simultaneous execution of other components of the work by other agencies may necessitate reorganizing, which shall not be accepted as grounds for any delay or excuse of any nature what so ever.
  - 19) The contractor shall make his own arrangements for electricity and its distribution. However Electricity Connection, if any available, shall be given at one point at the site, but the Employers do not guarantee uninterrupted supply. Energy thus provided shall be metered and the contractor shall reimburse the cost of energy to the Employer as per prevailing rates.
  - 20) **Approval of shop drawing / fabrication drawings / SLD's:** The contractor shall make shop drawings for all site work, detailed fabrication drawings for all tanks, vessels, headers etc. and Single Line Diagram for all Electrical panels and shall obtain approval from the Engineer-in-Charge before proceeding with the fabrication/manufacture work.

21) "As Built" Drawings

At the completion of work and before issuance of certificate of provisional completion the Contractor shall submit eight (8) sets to the Department, layout drawing drawn at appropriate scale indicating the complete Electrical/Mechanical Works System "as installed".

22) Completion Certificate

On completion of the complete Electrical/Mechanical Works system installation a certificate shall be furnished by the Contractor countersigned by the licensed supervisor, under whose direct supervision the installation was carried out.

23) Guarantee

At the close of the work and before issuance of final certificate of provisional completion by the Engineer-in-charge/ Consultants, the Contractor shall furnish written guarantee indemnifying the owner against defective materials and workmanship for a period of one year after completion. The Contractor shall hold himself fully responsible for reinstallation or replacement, free of cost to owner, the following:

- a) Any defective work or material supplied by the Contractor.
- b) Any material or equipment supplied by the owner which is damaged or destroyed as a result of defective workmanship by the Contractor.
- c) Any material or equipment damaged or destroyed as a result of defective workmanship by the Contractor.

24. Scope of Work:

- a) Contractor shall submit the samples / catalogues of each material/ equipment giving technical data/ detail. Only after written approval of sample/ catalogues, the contractor shall place the order.
- b) Preparation of shop drawings. Contractor shall submit the detailed shop drawings after coordinating with the civil wing.
- c) Before starting of the work at site the contractor shall examine all service drawings and report to Architect/ Consultants for discrepancies and obtain clarifications. Any work done without regard of consultation with other trades, shall be removed by the contractor without additional cost to owner.
- d) Testing & commissioning of systems including submission of test report.
- e) Contractor shall submit as installed drawings, operation & maintenance manual for all equipment / operations etc. Framed operation and maintenance instructions shall be provided in plant room.
- f) Procurement of all the materials shall be done after the approval of the Engineer-in-charge.



## **ADDITIONAL SPECIFICATIONS FOR ELECTRICAL WORKS**

### **1.0 GENERAL**

- 1.1 All hardware items such as screws, thimbles, and steel wires etc. required for completing an item as per specifications are deemed to have been included in the item even if not specifically mentioned in the item.
- 1.2 All hardware materials such as MS nuts / bolts / screws / washers etc, to be used in the work shall be zinc coated / cadmium plated.
- 1.3 All conduits shall be provided with G I fish wire for wiring, failing which recovery shall be made @ Rs. 10 per metre of conduit. While laying conduit, suitable junction boxes shall be provided wherever required for pulling the wires. Nothing extra shall be paid for fish wire and junction boxes.
- 1.4 The contractor shall ensure that chase cutting machine is used for cutting chases for laying of conduit.
- 1.5 Flexible conduits may be used only for interconnection between point and fitting in false ceiling.
- 1.6 Telescopic rigid conduit may be used at expansion joints.
- 1.7 The work is to be carried out as per approved drawings. The contractor should study the drawings issued by the engineer-in-charge and modifications, if any, required to comply with the specifications, standards, and statutory rules shall be incorporated and got approved from the engineer-in-charge before execution.
- 1.8 The contractor shall make his own arrangements for temporary electricity and water connection, if required and make necessary payment including electricity and water charges for its use direct to the authority concerned. The engineer-in-charge will provide all possible assistance by way of reasonable recommendation for obtaining electricity connection to the concerned authorities but bears no responsibility for the same.
- 1.9 The contractor shall ensure that the skilled labour such as electrician, wireman engaged in the execution of work possess valid license issued by appropriate authorities. The wireman / electrician not having valid license shall not be permitted to work.
- 1.10 The electrical fittings in areas of false ceiling/drop ceiling are required to be suspended/secured from ceiling with suitable hanging arrangement of galvanized iron chains / dash fasteners. The opening/ slit for fittings in false ceiling shall be provided by the agency executing the item of false ceiling. However, fixing of electrical fittings in the said opening / slit in a straight line, flush with the false ceiling shall have to be ensured by the contractor.

### **2.0 MATERIALS AND TESTING**

- 2.1 Acceptable makes of materials to be used in the work are enclosed. In case of non-availability of these makes, the engineer-in-charge may allow use of alternative makes. Only ISI marked materials shall be used in the work. Non ISI marked materials may be permitted by the engineer-in-charge only when ISI marked materials are not manufactured.
- 2.2 The sample of the materials shall be submitted in advance to the engineer-in-charge and got approved before dispatch to the site of work. The contractor shall produce original invoice for procurement of electrical accessories, etc. from manufacturers or from their authorized dealers for authentication.

- 2.3 The contractor shall take prior permission from the engineer-in-charge regarding location for storage and stacking of materials required for the work at site. The cost of construction of store and watch and ward charges shall be borne by the contractors.
- 2.4 Testing of electrical installations shall be completed at least 30 days before the scheduled completion date of the work so that all necessary adjustments are carried out and trial runs completed before the work is treated as complete and the equipment are taken over by the department.
- 2.5 All the electrical equipment shall be brought to site when the site is available for installation, with prior permission of the engineer-in-charge.
- 2.6 The conduits for a large number of services may be required to be laid / embedded in RCC slab/walls or fixed on surface/cable trays. To enable identification of conduits of different services proposed in the building, the ends of conduits in junction boxes shall be painted as per the following colour schemes without any extra cost.
- |      |                                   |   |            |
|------|-----------------------------------|---|------------|
| i)   | Conduits for non-essential wiring | : | Black      |
| ii)  | Conduits for essential wiring     | : | Blue       |
| iii) | Conduits for UPS wiring           | : | Dark Green |
| iv)  | Conduits for fire alarm system    | : | Red        |
| v)   | Conduits for data/communication   | : | Yellow     |

### 3.0 **LT PANEL BOARD**

- 3.1 The manufacturing unit for LT panels shall have valid certification from CPRI. The contractor shall arrange facilities for inspection of equipment / materials for LT panels including conducting the required tests in the manufacturing unit.
- 3.2 Enclosure protection should be IP-42 as per IS : 2147.
- 3.3 On completion of work the contractor shall arrange for insulation and earth continuity test as per IE Rules in the presence of the engineer-in-charge or his representative and shall submit the test report in triplicate.

### 4.0 **APPROVAL OF DRAWINGS**

- 4.1 General arrangement drawing of the electrical works including LT panels and feeder pillars shall be got approved from the engineer-in-charge before commencement of work.
- 4.2 The contractor shall submit as-built single line diagrams for LT panels, feeder pillars and internal electrical layout to the engineer-in-charge, incorporate changes and modification suggested by him, and obtain his approval. Three sets of approved As-Built single line diagrams shall be submitted to the Engineer-in-charge.

### **PREFERRED MAKES OF MATERIALS FOR ELECTRICAL & MECHANICAL ITEMS**

All materials and Equipment shall conform to the relevant standards and shall be of approved make and design. The list of preferred makes for various equipments/materials etc. is given below. Any item missed out from the list should be got approved by the Engineer in Charge before delivery/ installation. Engineer-in-charge may, for any item, in the interest of work allow use of any other make/brand in addition to the makes/brands mentioned in the preferred makes lists subject to its satisfactory quality and on proper grounds like non-availability of preferred makes/brands in the market etc. In such case, cost adjustment shall be made if the make/brand actually used is priced lower than the lowest priced brands of that item in the preferred makes list. However, nothing extra shall be paid if actually used brand/make is of higher price than the highest priced brand/make in the list of preferred makes.

<b>Sl. No.</b>	<b>Name of Product/ Material</b>	<b>Preferred Brand Names</b>
1	11 KV VCB Panel ( No Channel partners are allowed)	L&T/ ABB/ Schneider/ Siemens
2	Dry type/ Oil type Transformer (11KV/433 VOLT)	Kirloskar/ ABB/ Schneider Electric/ Voltamp/ Crompton Greeves
3	ACB	Legrand - DMX3 MP4 LSI/ Schneider - Masterpact NW (6.0A)/ L&T - U Power Omega (MTX3.5)/ Siemens 3WL (ETU 45B)/ ABB Emax (PR122)
4	MCCB	Legrand - DPX3/ Schneider - NSX/ L&T DU/ ABB Tmax
5	MCB/ RCCB/ Isolator/ MCB DB	Legrand - DX3/ Schneider - Acti9/ Hager-H3/ Siemens Beta Guard 10KA/ ABB S200M
6	Main LT panel/ Sub LT Panels/ Capacitor Panel/ Synchronizing Panel with Accessories/ Meter Panel/ Starter Panel	NEPTUNE/ PRECISION SYSTEM CONTROL/ ADVANCE PANELS & SWITCHGEAR (P) LTD / ADLEC/ TRICOLITE
7	DG set - Acoustic Enclosure & Assembler	As per OEM
8	AMF Controller	As per OEM
9	DG set - Alternator	Stamford/ Leroy Somer/ Kirloskar Electric
10	DG set - Engine	Cummins/ Perkins/ Caterpillar/ KOEL
11	DG set - Batteries	Exide/ Amaron/ Panasonic/ TATA Green
12	Power/ Auxillary Contractor/ Capacitor Duty Contactor	ABB/L&T/ Schneider/ Siemens/ Legrand
13	11 KV HT Cable/ 1.1 KV LT Cable	Havells/ Polycab/ KEI
14	Brass compression Gland (Heavy duty)	Commex/ Gripwell/ Dowell
15	Bus Duct, Air insulated compact rising mains, end feed unit, tap-off box (plug-in type)	C&S/ ADVANCE PANELS & SWITCHGEAR (P) LTD / ADLEC/ TRICOLITE
16	Power Capacitor, Capacitors & Capacitor Bank	Siemens/ ABB/ EPCOS/ Ducati/ Legrand
17	Contactors / Starters	ABB/ L&T/Schneider/ Siemens/ Legrand
18	Meters including Digital Meters	L&T/ Schneider/ Siemens/ ENERCON
19	HT, LT Jointing Kit & Termination kit	Reychem/ 3M/ M Seal
20	PVC Conduit & Accessories (ISI marked)	AKG/ BEC/ NIC
21	Modular Switch/ Socket outlets/ Data/ Telephone/ TV outlets and wiring accessories with moulded cover plate	Legrand - Arteor/ MK - Orna/ ABB - IVIE / Crabtree -Murano
22	Cat 6 cable	Legrand/Panduit/Commoscope
23	TV/Telephone cable	Havells/ Polycab/ KEI/ Finolex
24	1.1 KV FRLS copper conductor wire	Havells/ Polycab/ KEI/ Finolex
25	Indicating Lamp (LED type)	L&T/ Siemens/ Schnieder
26	Push Button	L&T/ Siemens/ Schnieder
27	Pressure Gauge	H-Guru/ Bell
28	Pump	Mather & Platt / Kirloskar/ KSB/ Grundfos

29	Motor	ABB/ Siemens/ Crompton Greaves/ Kirloskar/KSB
30	Fastner	Hilti/ Fischer
31	Smoke detector	NOTIFIER/ BOSCH/ MORLEY/ APOLLO /DEPNOV
32	Control Panel	NOTIFIER/ BOSCH/ MORLEY/ APOLLO /DEPNOV
32	MCP & Hooter	NOTIFIER/ BOSCH/ MORLEY/ APOLLO /DEPNOV
33	DWC pipe	DURALINE/REX
34	MS pipe	TATA/JINDAL (HISAR)
35	Valve/ NRV	SANT/ZOLOTO/LEADER
36	Single headed Hydrant valves, four-way Fire Brigade inlet & shut off nozzle, Rubber Hose for hose reel, Suce & non return	Newage/Minimax/Gurads
37	Gyaser	Venus/Crompton/Havells/V-Guard
38	Light fittings	Phillips/Wipro/Havells/Bajaj
39	APFC relays & protective relays (Microprocessor based compatible with PC & PLC)	Simens/L&T/ABB/Scheider
40	PLC	Simens/L&T/ABB/Scheider
41	CT/PT	L&T/Kappa/Matrix/AE
42	Selector switch	Siemns/L&T/Schineider/ABB/BCH
43	Hand gloves and Insulated rubber mat upto 11 KV	ISI marked
44	ABC and CO2 type fire extinguisher	Guard/Kanes/Supermex
45	Celing /Exhaust Fan	Crompton/Usha/Orient/Havells
46	Lighting Automation/Control system including Dalight sensors and occupancy sensors	Lutron/ Dynalite/Scheider/Crestron/ Omicron / Lighting Technologies/ Philips
47	Perforated MS cable tray	MEM/AKG/BEC
48	Fire brigaded connection	Newage/Minimax/Superex
49	Flowswitch/monitor module	System sensor/TYCO/Potter
50	UPS	Emerson/APC/Numeric
51	Welding rods	ESSAB/ADOR/ESSAR
52	Timer	L&T/ABB/Legrand/Seimens
53	External Lighting Pole	Utkarsh / BPP /Bajaj
54	Lift	OTIS Elevator/ Kone Elevator/ Schindlier/ Mitsubisi/ Jhonson Elevator/ Thyssenkrupp
55	CCTV System	Honeywell Enterprise / Bosch/ Axis Enterprise/
56	Networking Enclousers, Racks of various sizes 15U upto 42U	APW-VERO President, Rittal, Panduit-Pannet, Netrack& Valrack
57	Networking switches-access switches, Distribution switches, core switches, server farm switches and their components such as 1 GSFP, 10 G SFP + AND 40G QSFP+ Transceiver and modules and other accessories such as Power supplies, Fans, Stacking cables.	CISCO/Extreme Networks/HPE(ARUBA)/Juniper
58	Network Management System	CISCO/Extreme Networks/HPE(ARUBA)/Juniper / Motadata
59	Firewall and its Accessories	Checkpoints/Cisco/PALOALTO/Juniper
60	Sewage Treatment Plant	ION EXCHANGE /PS AQUA Pvt. Ltd. / BRISANZIA / THERMAX
61	Structured Cabling (VDI)-Patch Panel	Legrand/Panduit(Pannet)/Siemon
62	Structured Cabling (VDI)-Patch Cord	Legrand /Panduit(Pannet)/Siemon

63	Structured Cabling (VDI)-R+acks	Legrand - Valrack/ Rittal/APW
64	Structured Cabling (VDI)-Fibre Optics	Legrand /Panduit(Pannet)/Siemon
65	Wire-mesh Cable Tray	Legrand - Cablofil/ Tyco/ Cooper
66	Cable Management Systems- Raceways/Floor Boxes/Trunkings	Legrand - CMS/MK/ Schneider
67	EPABX System	NEC/ALCATEL/MATRIX/NERON

**Note: - Chief Engineer, CCU, MoEF&CC, New Delhi reserves the right to add or delete any materials and Brands in the list of approved materials/brands on the recommendations of Engineer-in- charge**

# **SCHEDULE OF QUANTITY**

**(SH:- : Electrical and Mechanical Works)**

### Schedule of Quantity

NAME OF WORK - CONSTRUCTION OF NEW HOSTEL BLOCK (G+2) FOR IGNFA AT FRI CAMPUS,  
DEHRADUN SH: DEVELOPMENT WORK OF NEW HOSTEL BLOCK-A AT IGNFA, DEHRADUN.  
(TAKEN OUT OF MAIN WORK)

S.No	Description	Quantity	Unit	Rate	Amount
	<b>SUB HEAD XII :- EXTERNAL LIGHTING SYSTEM</b>				
1	Erection of metallic pole of following length in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) foundation including excavation and refilling etc. as required.				
a	Above 4.5 metre and upto 6.5 metre	10.00	Each	5121.00	51210.00
2	Supplying and embedding following dia G.I. pipe (medium class) in pole collar/ foundation (during casting) for cable entry including bending the pipe to the required shape, Hole Sealing to be done complete as required.				
a	32 mm dia	60.00	Metre	525.00	31500.00
3	Supply , Installation, Testing & Commissioning of <b>Integrated Post Top Lantern With 40W LED Lamp</b> including Pole & connection with 3 x 2.5 sq.mm single core PVC insulated copper conductor cable from junction box to fixture as required.	2.00	Nos.	8350.00	16700.00
4	Supply, Installation, Testing and Commissioning of <b>Hybrid 45 Watt Solar Street Light luminaire with 6 Mtr Octagonal Pole</b> & inbuilt SCC made IP65 & with MPPT (Maximum Power Point Tracking) which provides about 25% more charging efficiency by utilizing maximum energy harvested by solar PV modules. System should designed to withstand highly corrosive atmosphere and heavy wind loads. The modules are certified for industry standards IEC61215, IEC61730 (safety class 1 & 11), IEC61701 along with 6 Mtr. octagonal	10.00	Nos.	47463.00	474630.00

S.No	Description	Quantity	Unit	Rate	Amount
	pole with 100 AH lead acid battery & 125 Wp solar panel Total lumen output should not less than 3100 lumen Complete with all Accessories & Control Gears etc				
5	Supply Installation, Testing & Commissioning of <b>8W - 10w LED BOLLARD Light</b> made of aluminum pipe powder coated black after phosphochromate treatment with aluminum heat sink for effective thermal management, sturdiness & excellent corrosion resistant. Mounting flange of MS sand casting is used at the bottom.PC diffuser cover in opal finish is used for glare free uniform light distribution.High efficiency long life LED module with SMD LED package mounted on MCPCB with lumen efficacy of >130 lm/W with system lumen 470Lm. Powered by built-in, isolated electronic LED driver in ABS housing with APFC (SMPS based constant current supply) with lower THD, Output Short / Open Circuit protection, Over Voltage protection, Surge Voltage protection. CCT 5700, CRI>80, THD<15%, PF>.95, IP65,IK 07 ,Life class of 50,000 hrs @ L70, Operating Temperature:-10 TO +45 DEG.C; Input rated voltage:240VAC/50HZ.	10.00	Nos.	3662.00	36620.00
6	Supplying of Following sizes 1100 volt grade XLPE insulated PVC sheathed aluminium conductor armoured cables as per specification in existing laid in ground including cost of digging upto required depth, 150 mm sand all around the cable, brick protection and back filling, clamped to wall with suitable clamps including saddles fixing bolts, Connection Testing and commissioning as Required.				
a	4x16 sqmm	730.00	Metre	236.00	172280.00



S.No	Description	Quantity	Unit	Rate	Amount
7	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation and refilling the trench etc. as required, but excluding sand cushioning and protective covering.				
a	Upto 35 sq. mm	730.00	Metre	200.00	146000.00
8	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.				
a	Upto 35 sq. mm	20.00	Metre	37.00	740.00
9	Supplying and Making End Termination With Brass Compression Gland and Aluminium lugs for Following Size of PVC Insulated and PVC Sheathed / XLPE Aluminium Conductor Cable of 1.1 kV Grade as Required.				
a	4 X 16 sq. mm (28mm)	16.00	Each	309.00	4944.00
10	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	4 core 1.5 sq.mm (for 6/4 Mtr Poles)	320.00	Metre	120.00	38400.00
11	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. in the existing trench, complete as required.				
a	63 mm dia (OD-63 mm & ID-51 mm nominal)	30.00	Metre	127.00	3810.00

S.No	Description	Quantity	Unit	Rate	Amount
12	Supplying of 6 mtr. long octagonal pole galvanized continuously tapered (bolt fixing type) in single section made out of 3mm thick sheet having top dia 70mm and bottom dia 130mm with 04 Nos. hot dip galvanized foundation bolts of size 20mm dia x 700mm long alongwith suitable size GI single arm bracket 1500mm long, i/c providing and fixing bakelite sheet of size 25cm x 10cm x 6mm thick, 3 nos connector, of suitable size and 1 no 6A SP MCB + 3X1.5 Sq.mm Cu cable inside the pole to complete wiring upto LED fittings with door and locking arrangement near bottom of the pole as suitable height etc as required. (Make Bajaj / BPP / Utkatrsh)	10.00	Each	10212.00	102120.00
	<b>SUB HEAD XIII :- FIRE ALARM SYSTEM (CONVENTIONAL TYPE)</b>				
13	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				
a	25mm.	100.00	Metre	256.00	25600.00
14	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
a	2 x 1.5 sq. mm	120.00	Metre	70.00	8400.00
b	3 x 1.5 sq. mm	100.00	Metre	95.00	9500.00
c	6 x 1.5 sq. mm	100.00	Metre	181.00	18100.00

S.No	Description	Quantity	Unit	Rate	Amount
15	Supplying, installation, testing & commissioning of manual call boxes of MS construction in surface/recess with stainless steel chain & hammer assembly complete with glass and push button etc. as required.	9.00	Each	474.00	4266.00
16	Supplying, installation, testing & commissioning fire alarm sounder with facility to make announcement, mounted in M.S. box (16 SWG) with hinged cover plate & suitable for operation with amplifier i/c line matching transformer etc. complete as required.	9.00	Each	557.00	5013.00
17	Supplying, installation, testing & commissioning sector panel suitable for following zones, complete with visual indications for short circuit fault, open circuit fault, fire condition and all other standard facilities as per IS:2189 with mimic diagram for all area/zone covered, complete with all connections, interconnections as required.	3.00	Each	8866.00	26598.00
	4 Zone				
18	Supplying, installation, testing & commissioning of main control and indicating panel made out of 16 SWG MS sheet to accommodate the following items duly powder coated in approved colour with louvers for ventilation, locking arrangement, audio and visual indication for fire alarm and public address system, monitoring system including connections, interconnections etc complete as required.				
a	6 zone panel for fire alarm system				

S.No	Description	Quantity	Unit	Rate	Amount
	100 watt amplifier racks suitable for operation on 230V AC/24V DC supply conforming to IEC-268-3 complete with all Talk back master station with LED PTT (press to talk) push button for operation on 230V AC/24 V DC supply conforming to IEC-268 for simplex mode of operation/communication suitable for 20 Nos.talk back unit -1 set.				
	Annoucement control desk suitable for selection of different zones selectively and ON ALL CALL switch with visual indication etc., complete as required- 1 set.				
	Amplifier change over switch for inter changing amplifier- 1 No. Monitor panel for loudspeaker complete output selector ON/OFF switch, fuse visual indications etc. complete as required- 1 No				
	Gooseneck microphone with stand and ON/OFF switch -1 No. Mains ON/OFF switch, fuse indication lamps, DC and AC voltmeters & ammeters terminal blocks etc. complete as required -1 set.				
	Gooseneck microphone with stand and ON/OFF switch -1 No. Mains ON/OFF switch, fuse indication lamps, DC and AC voltmeters & ammeters terminal blocks etc. complete as required -1 set.	1.00	Each	48718.00	48718.00
	<b>SUB HEAD XIV :- IP-EPABX SYSTEM</b>				

S.No	Description	Quantity	Unit	Rate	Amount
19	Supply, Installation, Testing & Commissioning of Pure IP at core server Based voice solution with 04 Port Voicemail ,04 Port FXS ,04 Port FXO ,1 PRI Trunk lines (30 Ch) Circuit with CLIP Facility ,118IP users License ,01 Nos. IP Operator Console, 100 Party Conference ,Speed Dial, Music on Hold , Internal/ External ring difference ,Call Barring, Call Pickup, TEC should be with GR Number, - Should Support Redundant server in active-Active mode.	1.00	Set	592183.00	592183.00
20	Supply, Installation, Testing & Commissioning of Type 1 IP Phone 2 VoIP account, 120x40 Dot-matrix screen with backlight, Full HD duplex speaker phone, IPV6, Gigabit Ethernet, PoE.	114.00	Nos	3645.00	415530.00
	<b>SUB HEAD XV :- LOCAL AREA NETWORK (LAN)</b>				
21	Supply , Installation , Testing and Commissioning of Core Switch with switching capacity of 3.2Tbps, forwarding performance of 2Bpps with 48 x 1/10G/25G SFP28 ports plus 4x 40/100G QSFP28 ports from day 1, dual hot swappable internal power supply, MAC address 200k, 100k IPv4, 100K IPv6 routes and 48K IPv6 multicast routes. Should support advance layer 3 (OSPF, BGP and MPLS) with 1 year support. Stack Module/40 Gig Optics and all other Cables should be included in Day 1.	1.00	Nos	427782.00	427782.00

S.No	Description	Quantity	Unit	Rate	Amount
22	Supply, Installation, Testing & Commissioning of 24 Port POE+ Access Switches with switching capacity of 200 Gbps, forwarding performance 150 Mpps, having 24 x 10/100/1000BASE-T PoE-plus(RJ45) with minimum PoE budget of 370 W, with 4 x 10G SFP+ uplink ports. Should support min 4GB internal DRAM, 8GB internal Flash memory, 64K MAC address. Should have Static Routing, Neighbor discovery, system logging, Telnet, SSH, SNMP, Network Time Protocol (NTP), Domain Name System (DNS) and IPv6 features from day 1 and should support OSPF, VRRP, OSPFv3 and PIM.	4.00	Nos	121257.00	485028.00
23	Supply, Installation, Testing & Commissioning of fiber Modules 1000BASE	4.00	Nos	12453.00	49812.00
24	Supply, Installation, Testing & Commissioning of fiber Modules 10G BASE	4.00	Nos	22642.00	90568.00
25	Supply, Installation, Testing & Commissioning of Armoured 06 Core Singlemode (OS2) 9/125 Fiber Cable, ITU G.652.D, G.657A1, Outdoor ECCS Armoured Fiber Cable with PBT Loose Tube Filled With Thixotropic Jelly, Uni-Tube, Glass Yarn, Water Swellable Tape Under Armor, UV-HDPE Jacket.	150.00	Mtr	44.00	6600.00

S.No	Description	Quantity	Unit	Rate	Amount
26	Supply, Installation, Testing & Commissioning of 6 Port 1U x 19" LIU Loaded with Singlemode OS2 LC Adapters & LSZH Pigtails along with Splice Trays, Min. 4 No of Circular Cable Entry with Rubber Groummet/Glands to close any open entry, Cable Holders for Cable Entry Inside Panel, Heat Shrink Tubes for Splices, Tube for open fibers, Ties, Panel shall be Powder Coated with Min. 1.2mm Metal Sheath, 30 Years Channel Warranty. Factory Loaded LC Type LSZH Pigtails should meet IEC 61034-1 ,IEC-60332-1, IEC-60754-1, Insertion loss <= 0.35 dB, Return Loss >= 50, Attenuation: 1310/1550 : 0.3/0.2 dB/KM, Repeatability: <= 0.2DB 1000 Times Mating Cycles, RoHS Complied, Meets ANSI/TIA 568.3-D.	6.00	Nos.	4108.00	24648.00
27	Supply, Installation, Testing & Commissioning of 24 Port 1U x 19" LIU Loaded with Singlemode OS2 LC Adapters & LSZH Pigtails along with Splice Trays, Min. 4 No of Circular Cable Entry with Rubber Groummet/Glands to close any open entry, Cable Holders for Cable Entry Inside Panel, Heat Shrink Tubes for Splices, Tube for open fibers, Ties, Panel shall be Powder Coated with Min. 1.2mm Metal Sheath, 30 Years Channel Warranty. Factory Loaded LC Type LSZH Pigtails should meet IEC 61034-1 ,IEC-60332-1, IEC-60754-1, Insertion loss <= 0.35 dB, Return Loss >= 50, Attenuation: 1310/1550 : 0.3/0.2 dB/KM, Repeatability: <= 0.2DB 1000 Times Mating Cycles, RoHS Complied, Meets ANSI/TIA 568.3-D	2.00	Nos.	4108.00	8216.00
28	Supply, Installation, Testing & Commissioning of Fiber Patch Cord, LC - LC, Spiral Steel Armored, 9/125µm OS2 Singlemode Round Cord (4.0 +/- 0.2mm), Duplex	72.00	Nos.	1193.00	85896.00

S.No	Description	Quantity	Unit	Rate	Amount
29	Supply, Installation, Testing & Commissioning of Cat 6A, 23 AWG (0.57 ± 0.03mm ) Bare Copper Solid Conductor UTP Unshielded LSZH Jacket, ANSI/TIA 568 C.2 Category 6A, Cable shall not have any kind of Non Metallic Barrier Tape or Metallic Shield inside. Connectivity of Hub room to End Point.	4000.00	Mtr	42.00	168000.00
30	Supply, Installation, Testing & Commissioning of loaded 24 port CAT 6A UTP, Transparent shutter jack panel, 1U height, UL-94V-0, clear label marks and earthing plug for CAT6A cable termination at rack end.	6.00	Nos.	9535.00	57210.00
31	Supply, Installation, Testing & Commissioning of Cat6A Patch Cord UTP Unshielded LSZH 24AWG Patch Cord, Diameter < 6.2mm, 1 Meter, Operating Temperature -20 to +60 Deg C. Patch cord 1 Mtr for rack side switch to jack panel connectivity.	114.00	Nos.	266.00	30324.00
32	Supply, Installation, Testing & Commissioning of Cat6A Patch Cord UTP Unshielded LSZH 24AWG Patch Cord, Diameter < 6.2mm, 2 Meter, Operating Temperature -20 to +60 Deg C. Patch cord 2 Mtr for rack side switch to end user connectivity.	114.00	Nos.	350.00	39900.00
33	Supply, Installation, Testing & Commissioning of 1, 2 and 4 port Style (Square) Keystone-Type Shuttered Faceplates for I/O fixing at user side.	114.00	Nos.	88.00	10032.00
34	Supply, Installation, Testing & Commissioning of 42 U (600W/1000D) floor mount rack with fans , 2 cable managers , satationary shelf , 2 Nos. of hardware pkts.	1.00	Nos.	33756.00	33756.00
35	Supply, Installation, Testing & Commissioning of 22 U floor mount rack with fans , 2 cable managers , satationary shelf , 2 Nos. of hardware pkts.	1.00	Nos.	15816.00	15816.00



S.No	Description	Quantity	Unit	Rate	Amount
36	Supply, Installation, Testing & Commissioning of 15U wall mount rack with fans , 2 cable managers , satationary shelf , 2 Nos. of hardware pkts.	3.00	Nos.	8086.00	24258.00
	<b>Total</b>			<b>Rs</b>	<b>3790708.00</b>
	<b>ADD @ 6.33% -GST ON DSR ITEM ( 99a,100a,105a,106a,107a,108a,109a,110 a,111a,112a,b,c, 113,114,115,116) (i.e on Rs 422799/- = Rs 26763/-)</b>			<b>Rs</b>	<b>26763.00</b>
	<b>TOTAL</b>			<b>Rs</b>	<b>3817471.00</b>
	<b>SAY</b>			<b>Rs</b>	<b>3817471.00</b>

Assistant Engineer( E)

Executive Engineer (E)

CCU

CCU

# PART-D

CIVIL CONSTRUCTION UNIT					
N.I.T. No: 13/EE/CED-II/CCU/2024-25					
Name of work : Construction of New Hostel Block (G+2) for IGNFA at FRI Campus, Dehradun SH: Development work of New Hostel Block-A at IGNFA, Dehradun. (Taken out of main work)					
SCHEDULE OF QUANTITY					
Name of the Contractor					
Sl. No.	Name of component	Estimated cost (Rs.)	Percentage above or below the estimated cost	% in Figures	Total Cost (Rs.)
1	2	3	4	5	6
1	<b>Composite Tender</b> (Civil Component Rs. 56,06,538/- + Electrical Component Rs. 38,17,471/-) <b>Total = Rs. 94,24,009/-</b>	94,24,009	*	*	*

\*- To be filled online in bid document.

- 1) The Column Nos. 4 & 5 are mandatory to be filled by the bidders / tenderers. If these columns are left blank, the tender become invalid.
- 2) The amount in figures in column No.6 shall appear automatically corresponding to the percentage quoted in column No.4 & 5.
- 3) The tenderer is required to quote the percentage only above or below or at par with the estimated cost to cover all the rates of item covered under the respective packages.
- 4) The percentage shall be written in 2 (two) place of decimal.
- 5) If the percentage selection in column No 4 is "At Par", by default the percentage will be considered as "Zero" only. In other words if "At par" is selected in column No.4, then no need to fill column No.5