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NOTICE FOR INVITING TENDER

The Registrar University of Allahabad on behalf of Vice Chancellor invites online item rate bids from **registered contractors in CPWD** for the following work(s):

S. No.	NIT NO.	Name of work and location	Estimated cost put to bid	Earnest Money	Period of Completion	Date of Publishing	Last date & time of submission of bid, EMD, e-tender processing fee and other Document as specified in the bid document	Time & date of opening of tender
1	2	3	4	5	6	7	8	9
1	01/UE/EL/ALLD/2021-22	S/f of Duct able type Air Conditioners for Account office , UoA.	Rs.15,74,273/-	₹ 31,500/-	45 Days	28.07.2021	Up to 03:00 PM on 17.08.2021	At 03:30 PM on 18.08.2021

Registrar
University of Allahabad



PART-A

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TECHNICAL CUM PREQUALIFICATION

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

1. The intending bidder must read the terms and conditions carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
2. Information and Instructions for bidders posted on website shall form part of bid document.
3. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website **www.eprocure.gov.in**
4. But the bid can only be submitted after depositing of original EMD in the office of University Engineer, Allahabad University within the period of bid submission and uploading the mandatory scanned documents such as 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 favor of University Engineer, University of Allahabad as mentioned in NIT, receipt for deposition of original EMD to office of the University and other documents as specified.
5. Those contractors not registered on the website mentioned above, are required to get registered beforehand.
6. The intending bidder must have valid class-III digital signature to submit the bid.
7. Contractor can upload documents in the form of **JPG** format and **PDF** format.
8. Contractor must ensure to quote rate of each item.

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

- I. Treasury Challan/Demand Draft/Pay order or Banker's Cheque /Deposit at Call Receipt/FDR/Bank Guarantee of any Scheduled Bank against EMD.
- II. Enlistment Order of the Contractor in appropriate class of composite category.
- III. Certificate of Registration for GSTN No.
- IV. Copy of receipt of deposition of original EMD issued from Office of the University Engineer, Allahabad University.
- V. *Certificate from any Govt. Organization for execution of same nature of work during last five years:*
 - (a) Three similar works each costing not less than 40% of estimated cost.
Or
 - (b) Two similar works each costing not less than 60% of estimated cost.
Or
 - (c) One similar work costing not less than 80% of estimated cost.

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RECEIPT OF DEPOSITION OF ORIGINAL EMD

(Receipt No. / date))

1. **Name of Work:** S/F Of Ductable type Air Conditioners for Account office, University of Allahabad
2. **NIT No. :** *01/UE/EL/ALLD/2021-22*
3. **Estimated Cost :** ₹ 15,74,273/-
4. **Amount of Earnest Money Deposit :** ₹ 31,500/-
5. **Last date of submission of Bid:** **UPTO 3:00 P.M.**
6. **Name of Contractor:** #
7. **Form of EMD** #
8. **Amount of Earnest Money Deposit** #
9. **Date of submission of EMD** #

.....

Signature, Name and Designation of EMD
Receiving person along with office stamp

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E-Tendering

1. Item rate bids are invited on behalf of Vice Chancellor, University of Allahabad, Allahabad from registered contractors in CPWD for the work of **“S/F Ductable type Air Conditioners for Accounts office, University of Allahabad”**.
The enlistment of the contractors should be valid on the last date of submission of bids.

In case the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.
- 1.1 The work is estimated to cost ₹ **15,74,273/-**. This estimate, however, is given merely as a rough guide.
2. Agreement shall be drawn with the successful bidders on prescribed Form. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **45 Days** from the 15th day of issue of LOA or first date of handing over of the site, whichever is earlier, in accordance with the phasing, if any, indicated in the bid documents.
4. (i) The site for the work is available.
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 on website **www.eprocure.gov.in**
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. Earnest Money in the form of 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 University Engineer, University of Allahabad, Allahabad) shall be scanned and uploaded to the e-Tendering website within the period of bid submission. The original EMD should be deposited in the Office of University Engineer, Allahabad University within the period of bid submission. The Office of the University Engineer shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by the tender inviting authority.
This receipt shall also be uploaded to the e-tendering website by the intending bidder up to the specified bid submission date and time.
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. Further, certified copy of all the scanned and uploaded documents as specified in bid document shall have to be submitted by the lowest bidder only within a week physically in the office of University Engineer.
Online bid documents submitted by intending bidders shall be opened only of those bidders, **whose original EMD deposited with Office of the University Engineer, Allahabad University, Allahabad** and other documents scanned and uploaded are found in order.

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The bid submitted shall be opened at 03:30 PM on 18.08.2021

9. The bid submitted shall become invalid if :

- (i) The bidder is found ineligible.
- (ii) The bidder does not deposit original EMD in the Office of the University Engineer, Allahabad University.
- (iii) The bidder does not upload all the documents (including VAT registration/Sales Tax registration/GSTN) as stipulated in the bid document including the copy of receipt for deposition of original EMD.
- (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 bidder** in the office of bid opening authority.
- (v) If a renderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

10. The contractor whose bid is accepted will be required to furnish **performance guarantee of 10% (Ten Percent)** of the bid amount within the period of 15th days from the date issue of LoA. This guarantee shall be in the form of Fixed Deposit Receipts drawn in favor of University Engineer, University of Allahabad. In case the contractor fails to deposit the said performance guarantee within the period including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited alongwith bid shall be returned after receiving the aforesaid performance guarantee.

The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses / registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board **Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the sub contractors, if any engaged by the contractor for the said work** and Programme Chart (Time and Progress) within the period as prescribed below.

	<ol style="list-style-type: none"> i) Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, or proof of applying thereof from the date of issue of letter of acceptance ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period as provided in (i) above 	<p style="text-align: center;">15 Days</p> <p style="text-align: center;">7 Days</p>
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11. Description of the work is as follows: **S/F Ductable type Air Conditioners for Accounts office, UoA..** Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or

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- otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the local conditions and other factors having a bearing on the execution of the work.
12. The competent authority on behalf of the Vice Chancellor, University of Allahabad does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
 13. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
 14. The competent authority on behalf of Vice Chancellor, University of Allahabad, Allahabad reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
 15. The contractor shall not be permitted to bid for works in the University if his near relative is posted as an employee in any capacity in the university. He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any faculty/officer/staff in Allahabad University. Any breach of this condition by the contractor the university will recommend CPWD to remove the firm from the approved list of contractors of CPWD.
 16. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
 17. **The bid for the works shall remain open for acceptance for a period of 30 days.** If any bidders 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 University shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.
 18. This notice inviting Bid shall form a part of the contract document. The successful bidders/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
 - (a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

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19.

- 19.1.1 The bidders must associate himself, with agencies of the appropriate class eligible to bid for each of the minor component individually.
- 19.1.2 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.
- 19.1.3 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.
- 19.1.4 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.
- 19.1.5 The main contractor has to associate agency(s) for minor component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to the University Engineer within prescribed time. Name of the agency(s) to be associated shall be approved by the University Engineer or person authorized by him for minor component(s).
- 19.1.6 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 the University Engineer. The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case the University Engineer is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.
- 19.1.7 The main contractor has to enter into agreement with contractor(s) associated by him for execution of minor component(s). Copy of such agreement shall be submitted to the University Engineer. In case of change of associate contractor, the main contractor has to enter into agreement with the new contractor associated by him.
- 19.1.8 Running payment for the composite work will be made to the main contractor.
- 19.1.9A. 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 the University Engineer after record of completion certificate of all other components.
- 19.1.9B. Final bill of whole work shall be finalized and recommendation for payment will be made by the University Engineer. A.E./J.E.(C/EI) in charge of minor component(s) will prepare and forward the bills to the University Engineer for further action.
- 19.1.9C. In case of any dispute arising out of any content the decision of the Vice Chancellor, UoA will be final & binding upon both the parties.
- 19.1.9D. *All disputes are subject to Jurisdiction of Allahabad.*

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ITEM RATE TENDER & CONTRACT FOR WORKS

(A) Tender for **S/f of Ductabel type Air Conditioners for Accounts office, UoA.**
the work of:

- (i) To be uploaded latest by **03:00 PM** hours on at **www.eprocure.gov.in**
- (ii) To be opened in presence of tenderers who may be present at **03:30 PM** hours on in the office of **University Engineer or other suitable place, University of Allahabad, Allahabad.**

TENDER

I/We have read and examined the notice inviting tender, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Quantity & 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 University of Allahabad within the time specified in the tender document viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for 30 days and not to make any modification in its terms and conditions.

A sum of **Rs.** is hereby forwarded in 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 University Engineer, University of Allahabad, Allahabad) **issued by a** scheduled bank as earnest money in the form of Demand Draft drawn in favor of University Engineer, University of Allahabad or as deposit receipt in the Account Office.

A copy of earnest money in 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 a scheduled bank in form of DD/Deposit Receipt is scanned and uploaded (**strike out as the case may be**). If I/We fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said the Vice Chancellor, University of Allahabad or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that the Registrar, University of Allahabad or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained.

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

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

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

Dated

Signature of Contractor

Witness:

Postal Address

Address:

Occupation:

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PROFORMA OF SCHEDULES

Name of Work: S/f of Ductable type air conditioners for Accounts office, UoA..		
Estimated cost of the work:		₹ 15,74,273/-
	Total	₹ 15,74,273/-
Earnest money		₹ 31,500/- (To be returned after receiving performance guarantee)
Performance Guarantee	10% of the tendered value of the work	
Security Deposit	10% of the tendered value of the work which will be deducted from the final bill and will be released after defect liability period of 12 months. Once the security deposit is deducted the performance guarantee will be returned to the Contractor.	



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GENERAL REQUIREMENTS FOR THE TENDER

Name of Work: **S/F of Ductable type air conditioners for Accounts office, UoA..**

- 1 The tenderer is advised to read and examine the tender documents for the work and the set of drawings available with the University Engineer. He should inspect and examine the site and its surroundings by himself before submitting his tender.
- 2 Separate schedule of quantity is included in this tender for civil and electrical items of work. If the tenderer wants to offer any unconditional rebates on their rates, the same should also be offered in the respective components of civil and electrical schedule separately. The contractor shall quote the item rates in figures and words accurately so that there is no discrepancy in rates written in figures and words.
- 3 Time allowed for the execution of work is **45 Days**.
- 4 The contractor(s) shall submit a detailed program of execution in accordance with the master programme /milestone within ten days from the date of issue of award letter.
- 5 Contractor has to arrange and install required quantity of tools, plants, scaffolding during the currency of work and nothing extra will be paid on this account.
- 6 Quality of the project is of utmost importance. This shall be adhered to in accordance with the provisions of CPWD/PWD specifications and guidelines given in the relevant paras.
- 7 The contractor (s) shall make his own arrangements for electricity and water required for the execution of work.
- 8 **Cement shall be arranged by the contractor himself.**
- 9 **Steel Reinforcement shall be arranged by the contractor himself.**
- 10 Contractor has to use specialized agencies for specialized items of works such as water proofing, aluminum works, structural glazing, ACP and other specialized items as mentioned in the tender documents. Only those specialized agencies/firms who have satisfactorily executed works as per following criteria during last seven years are eligible for the specialized works-
 - (a) Three similar works each costing not less than 40% of estimated cost for concerned sub head.
 - Or**
 - (b) Two similar works each costing not less than 60% of estimated cost for concerned sub head.
 - Or**
 - (c) One similar work costing not less than 80% of estimated cost for concerned sub head.

Approval of the specialized agencies for each specialized work shall be obtained from the University Engineer within one month of award of work. Even if, such specialized items of work shall be executed by the specialized agencies, the work shall be deemed to be executed by the tenderer for all purposes and the responsibility of the quality of items of works executed etc. shall continue to be that of the tenderer only.

- 11 Contractor has to deploy required Plant and machinery on the project. In case the contractor fails to deploy the plant and machinery whenever required and as per the direction of the University Engineer, he (University Engineer) shall be at a liberty to get the same deployed at the risk and cost of the contractor.
- 12 The contractor shall submit the running bills in the shape of the computerized MB in pages of A-4 size as per the standard format of University of Allahabad.
- 13 The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time.
- 14 The contractor will submit the photograph of the work site before starting the work, photographs of execution of work and photographs of completed work.



PART-B

MATERIAL AND QUALITY ASSURANCE

1. 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.
- ~~2. The contractor shall get the source of all other materials, not specified elsewhere in the document, approved from the University Engineer. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the University Engineer 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 University Engineer along with samples and once approved, he shall stick to it.~~
- ~~3. The contractor shall submit shop drawings of staging and shuttering arrangement, aluminum work, and other works as desired by the University Engineer for his approval before execution.~~
- 4. Test Laboratories :**
 - A) Laboratory at site :**

The contractor shall establish (if required) 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 2009 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 in charge. The contractor shall provide all necessary facilities for the purpose. The laboratory shall be equipped, inter alia, with the following equipments:

 - a) ~~**Balances:**~~
 - i) ~~7 kg to 10 kg capacity, semi-self indicating type Accuracy 10 gm.~~
 - ii) ~~500 gm capacity, semi-self indicating type Accuracy 1 gm.~~
 - iii) ~~Pan Balance 5 kg Capacity Accuracy 10 gm.~~
 - b) ~~**Ovens** Electrically operated, thermostatically controlled upto 1100C Sensitivity 10C.~~
 - c) ~~**Sieves:** as per IS: 460~~
 - i) ~~IS Sieves 450 mm internal dia of sizes 100 mm, 80 mm, 63 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm, complete with lid and pan.~~
 - ii) ~~IS Sieves 200 mm internal dia (brass frame) consisting of 2.36 mm, 1.18 mm, 500 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan.~~

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~~d) Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.~~

~~e) Equipment for slump test slump cone, steel plate, taping rod, steel scale, scoop.~~

~~f) Equipment for concrete testing~~

~~i) Concrete cube moulds 15x15x15cm. 18Nos.~~

~~ii) Pruning Rods 2Kg weight length 40cm and ramming face 25mm 1 No.~~

~~iii) Extra Bottom plates for 15cm cube mould 6 Nos.~~

~~iv) Standard Vibration table for cubes 1 No~~

~~v) Dial gauges 25 mm travel 0.01 mm/division least count 1 No.~~

~~vi) Compression testing machine of 100 tone capacity. 1 No.~~

~~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.~~

B) Other Laboratories :

~~B1 The contractor shall arrange carrying out all tests required under the agreement through the laboratory as approved by the University Engineer and shall bear all charges in connection therewith including charges for testing for all materials except cement for which separate condition is provided in tender document.~~

C) Sampling of Materials:

~~C1 Sample of building materials fittings and other articles required for execution of work shall be got approved from the University Engineer. Articles manufactured by companies of repute and approved by the University Engineer shall only be used. Articles bearing BIS certification mark shall be used in case the above are not available, the quality of samples brought by the contractor shall be judged by standards laid down in the relevant BIS specifications. All materials and articles brought by the contractor to the site for use shall conform to the samples approved by the University Engineer which shall be preserved till the completion of the work.~~

~~C2 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 University Engineer.~~

~~C3 BIS marked materials except otherwise specified shall be subjected to quality test at the discretion of the University Engineer besides testing of other materials as per the specifications described for the item/materials. Wherever~~

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BIS marked materials are brought to the site of work, the contractor shall if required, by the University Engineer furnish manufacturers test certificate to establish that the material produced by the contractor for incorporation in the work satisfies the provisions of BIS codes relevant to the material and/or the work done.

- C4 The contractor shall procure all the materials in advance so that there is sufficient time to testing and approving of the materials and clearance of the same before use in work.
- C5 All materials brought by the contractor for use in the work shall be got checked from the University Engineer or his authorized representative of the work on receipt of the same at site before use.
- C6 The contractor shall be fully responsible for the safe custody of the materials issued to him even if the materials are in double lock and key system.
- C7 The Stone aggregate/stone, sand shall be brought from any quarries subjected to the said materials confirm CPWD/PWD specifications.
- 5 The day to day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the Junior Engineer of work and which shall be duly signed by the contractor or his authorized representative.
- 6 The contractor shall render all help and assistance in documenting 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.
- 7 The contractor shall be fully responsible for the safe custody of materials brought by him issued to him even though the materials are under double lock key system.
- 8 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.
- 9 ~~In case there is any discrepancy in frequency of testing as given in the list of mandatory test and that in the individual sub head of work as per CPWD specification 2009 Vol. 1 & 2 the higher of the two frequencies of testing shall be adopted.~~

ADDITIONAL CONDITIONS FOR CEMENT

1. ~~The contractor shall procure Portland Pozzolana Cement conforming to IS: 1489 (Part I) as required in the work, from reputed manufacturers of cement, such as A.C.C., Ultratech, Vikram, Shri cement, Ambuja, Jaypee Cement, Century Cement, J.K. Cement, etc. The tenderers may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name(s) of cement manufacturer(s) which the tenderer proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturers, given by the tenderer, fully or partially.~~
 - ~~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 University Engineer 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 University Engineer to do so.~~
2. ~~The cement brought to site and the cement remaining unused after completion of the work shall not be removed from site without the written permission of the University Engineer.~~
3. ~~The damaged cement shall be removed from the site immediately by the contractor on receipt of a notice in writing from the University Engineer. If he does not do so within three days of receipt of such notice, the University Engineer shall get it removed at the cost of the contractor.~~
4. ~~The contractor may use OPC in place of PPC only after written permission of University Engineer. In such case, no extra payment shall be made in any form to the contractor by the University.~~

ADDITIONAL CONDITIONS FOR STEEL REINFORCEMENT

1. The contractor shall procure TMT bars of **Fe 500 D** grade from primary steel producers such as ~~SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd and JSW Steel Ltd or any other producer as approved by CPWD who are using iron ore as the basic raw material/input and having crude steel capacity of 2.0 million tonnes per annum and above.~~
 - 1.1 ~~TMT bars shall meet the provisions of IS 1786: 2008 pertaining to **Fe 500 D** grade of steel.~~
2. ~~The contractor shall have to obtain vouchers and furnish test certificates to the University Engineer in respect of all supplies of steel brought by him to the site of work.~~
3. ~~Samples shall also be taken and got tested by the University Engineer as per the provisions in this regard in the relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications as defined under para 1.1 and 1.2 above, the same shall stand rejected and it shall be removed from the site of work by the contractor at his cost within a week time of written orders from the University Engineer to do so.~~
4. ~~The steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent distortion & 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.~~
5. ~~For checking nominal mass, tensile strength, bend test, re-bend test etc. specimens of sufficient length shall be cut from each size of the bar at random at frequency not less than that specified below:~~

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

6. ~~The contractor shall supply free of charge the steel required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor.~~
7. ~~The actual issue and consumption of steel on work shall be regulated and proper accounts maintained.~~

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8. ~~The steel brought to the site and the steel remaining unused shall not be removed from site without the written permission of the University Engineer~~
9. ~~Steel bars brought by the contractor for use in the work shall be got checked from the University Engineer or his authorized representative of the work on receipt of the same at site before use.~~
10. ~~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 University Engineer.~~
11. ~~Reinforcement including authorised spacer bars and lappages 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.~~
12. ~~The standard sectional weights referred to as in Table 5.4 under para 5.3.4 in CPWD specifications for works 2009 Vol. 1 will be considered for conversion of length of various sizes of MS bars, Tor steel bars and TMT bars into standard weight.~~
13. ~~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 University Engineer 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.~~
14. ~~If the derived weight as in para 13 above is lesser than the standard weight as in para 12 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 worked out in para 12 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.~~
15. ~~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.~~
16. ~~Tolerances on Nominal Mass (individual sample) shall be as under:-~~

Sl. No.	Nominal size mm	Tolerances on the Nominal Mass, percentage
1	Upto and including 10	-8%
2	Over 10 upto & including 16	-6%
3	Over 16	-4%

GENERAL TERMS AND CONDITIONS

- 1 The order of preference in case of any discrepancy as indicated in condition may be read as the following:
 - i) Nomenclature of items as per schedule of quantities.
 - ii) Particular specification and special condition, if any.
 - iii) CPWD/PWD specifications.
 - iv) Architectural Drawings
 - v) Indian standard specifications of B.I.S.
 - vi) Sound Engineering Practice

A reference made to any Indian Standard specification in these documents, shall imply to the latest version of that standard. Including such revision/amendments as issued by the bureau of Indian standard upto last date of receipt of tenders. The contractor shall keep at his own cost all such publications of relevant Indian standard applicable to the work at site.
- 2 Except for the items, for which particular specifications are given or where it is specifically mentioned otherwise in the description of items in the schedule of quantities the work shall generally be carried out in accordance with the "CPWD specifications 2009 Vol. 1 and Vol. 2 (with upto date corrections slips). (Hereinafter to be referred to as CPWD specifications) and instructions of University Engineer. Wherever CPWD specifications are silent the latest IS codes/specification/PWD specification shall be followed.
- 3 Unless otherwise provided in the Schedule of Quantities/Specifications, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the work and nothing extra shall be payable to him on account of the same.
- 4 The proposed building is a prestigious project and quality of work is paramount importance. Contractor shall have to engage well experienced skilled labour and deploy modern T&P and other equipment to execute the work.
- 5 a) The contractor (s) shall inspect the site of work before tendering and acquaint himself with the site conditions and no claim on this account shall be entertained by the department.

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- b) The contractor (s) shall get himself acquainted with nature and extent of the work and satisfy himself about the availability of materials and conveyance of materials required for construction.
- 6 The contractor (s) shall study the soil investigation report for the site if available in the office of the University Engineer and satisfy himself about complete characteristics of soil and other parameters of site. However, no claim on the alleged inadequacy or incorrectness of the soil data shall be entertained.
- 7 The tenderer shall see the approaches to the site. In case any approach from main road is required by the contractor, the same shall be made good, improved and maintained by the contractor at his own cost. No payment shall be made on this account.
- 8 The contractor (s) shall give to the Municipality, Police and other authorities all necessary notices etc. that may be required by law and obtain all requisite Licenses for temporary obstructions, enclosures etc. and pay all fee, taxes and charges which may be leviable on account of these operations in executing the contract. He shall make good any damage to the adjoining property whether public or private and shall supply and maintain light and other illumination on for cautioning the public at night.
- 9 The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night speed limit boards red flags, red lights and providing barriers. He shall be responsible for all dangers and incidents caused to existing / new work due to negligence on his part. No hindrances shall be caused to traffic during the execution of the work.
- 10 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
- 11 The contractor shall make his own arrangement for obtaining electric connection(s) if required and make necessary payments directly to the department concerned.
- 12 Other agencies doing works related with this project may also simultaneously execute their works and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, openings etc. for

- laying/burying in the work, pipes cables, conduits, clamps, boxes and hooks for fan clamps etc. as may be required for the other agencies. Nothing extra over the Agreement rates shall be paid for doing these.
- 13 Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restrictions/instructions and nothing extra shall be payable on account of the same.
- 14 The contractor shall fully comply with all legal orders and directions of the Public or local authorities or municipality and adhere by their rules and regulations and pay all fees and charges for which he may be liable in this regard. Nothing extra shall be paid/reimbursed for the same.
- 15 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 University Engineer and nothing extra shall be paid on this account.
- 16 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.
- 17 If as per local Municipal regulations, huts for labour are not to be erected at the site of work; the contractor shall be required to provide such accommodation at a place as is acceptable to the local body and nothing extra shall be paid on this account.
- 18 It shall be ensured by the contractor that no electric live wire is left exposed or unattended to avoid any accidents in this regard.
- 19 The structural and architectural drawings shall at all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities appended with the tender and Architectural drawings relating to the relevant item, the former shall prevail unless otherwise given in writing by the University Engineer.
- 20 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.

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21 The entire royalty at the prevalent rates shall have to be paid by the contractor on all the boulders, metals, shingle sand etc. collected by him for execution of the work, directly to the Revenue authority or authorized agents of the State Government concerned or the Central Government, as the case may be.

~~22~~ **PROGRAMME CHART**

~~i) The contractor shall prepare an integrated programme chart for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the programme within the stipulated period of the contract and submit the same for approval to the University Engineer within ten days of the award of the contract.~~

~~ii) The programmes chart should include the following:-~~

~~a) Descriptive note explaining sequence of various activities.~~

~~b) Net work (PERT/CPM/BAR CHART)~~

~~c) Programme for procurement of materials by the contractor~~

~~d) Programme of procurement of machinery/equipment's having adequate capacity commensurate with the quantum of work to be done within the stipulated period by the contractor.~~

~~23 If it appears to the University Engineer 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 within the stipulated time for completion.~~

~~24 The submission for approval by the University Engineer of such programme or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of University Engineer to take action against the contractor as per terms and conditions of the agreement.~~

~~25 If the work is carried out in more than one shift or during night no claim on this accounts shall be entertained.~~

26 Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be

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protected against the damage by the contractor at his own expense. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.

27 The contractor shall be responsible for the watch and ward/guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.

28 The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by department.

29 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 for extra cement considered in consumption on this account.

30 The contractor shall take instructions from the University Engineer for stacking of materials. No excavated earth or building materials etc. shall be stacked /collected in areas where other buildings, roads, services, compound walls etc. are to be constructed.

Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machinery's and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.

31

~~i) The contractor shall submit for the approval of University Engineer names of specialized agencies of repute along with their technical capacity proposed to be engaged by him, who must have executed satisfactorily works of value as specified in mandatory conditions.~~

~~ii) The works shall be carried out in accordance with the Architectural drawings (if any) and structural drawings (if any), to be issued from time to time by the University Engineer. 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 University Engineer 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.~~

- ~~iii) The contractor shall take all precautions to avoid accidents by, exhibiting caution boards day and night, speed limit boards, red flags, red light and providing necessary barriers and other measures required from time to time. The contractor shall be responsible for all damages and accidents due to negligence on his part.~~
 - iv) Other agencies will also simultaneously execute and install the works of electrification, air conditioning, lifts, fire-fighting etc. for this work and the contractor shall provide necessary facilities for the same. The contractor shall leave such recesses, holes openings etc. as may be required for the electric, air-conditioning and other related works (for which inserts, sleeves, brackets, conduits base pinion, clamps etc. shall be supplied free of cost by the department unless otherwise specifically mentioned) and the contractor shall fix the same at time of casting of concrete, stone work & brick work, if required and nothing extra shall be payable on this account.
 - v) 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 University Engineer and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.
 - vi) All Architectural drawings given in the tender 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 (if any) duly approved by the University Engineer.
- 32 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 University Engineer, well in advance of actual execution and shall be preserved till the completion of the work. Articles bearing BIS certifications mark shall only be used unless no manufacturer has got BIS mark for the particular material. Any material/fitting whose sample has not been approved in advance and any other unapproved

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material brought by the contractor shall be immediately removed as soon as directed.

Unless otherwise specified in the schedule of quantities the rates for all items shall be considered as inclusive of pumping/bailing 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, surface and sub-soil water etc. and shall apply to the execution in any season.

- ~~33~~ On completion of work, the contractor shall submit at his own cost four prints of "as built" drawings to the University Engineer within 30 days of completion of work. These drawings shall have the following information:
- ~~a)~~ Route of all piping and their diameters including soil waste pipes & vertical stacks.
 - ~~b)~~ Ground and invert levels of all drainage pipes together with locations of all manholes and connections upto outfall.
 - ~~c)~~ Route of all water supply lines with diameters, location of control valves, access panels etc.
- 34 Condition regarding secured advance: - No advance will be made.
35. In the event of any dispute the decision of the Vice Chancellor, University of Allahabad, Allahabad will be final and binding upon both the parties.
36. The court in the City of Allahabad alone shall have jurisdiction related to the work.
37. **Scope of work:** Detailed scope of work, special terms & conditions, makes of materials and specifications etc. are enclosed with this NIT as per Annexure Bidder must read them before filling rates.
38. **Deviations :** No deviation from the stipulated terms and conditions will be allowed. Tender will be unconditional.
39. **Site conditions :** Contractor shall acquaint himself fully with the site conditions and the working environment of UoA before quoting his rates. No Compensation on account of any site difficulties will be entertained, at a later date, after award of the work.
40. **Liquidated damages:** In case the work is delayed beyond the specified completion period for reasons attributable to the contractor, deductions on

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account of Liquidated damages @ ½% of the contract value per week will be deducted subject to a maximum of 5% of the contract value. However, during the delayed period, UoA also reserves the right to get some portion of the work done by any other contractor at the risk and cost of the existing contractor and amount to that effect along with 10% overhead charges will be deductible from this bills/dues.

41. **Extra or substituted item:** If any extra or substituted item appears in the work, contractor shall submit its rate analysis supported with documents which shall be approved by UoA. If required, UoA can make its own analysis based on DSR/PWD-SOR document of CPWD/UP-PWD or based on market rates for determining item rate and pay to contractor accordingly.
42. **Termination of Contract:** The Registrar, UoA reserve the right to terminate the contract on account of poor workmanship, failure to mobilize site within 15 days, work, violation of any contract provisions, subletting the work, etc. by the contractor. In such case, contractor's EMD and security deposit deducted so far will be forfeited.
43. **Escalation:** No escalation over and above items rates quoted by the bidder shall be paid during the execution of contract.
44. **Completion time:** The time shall be the essence of this contract and entire work as titled above is to be completed in all respects within a period of **45 Days** from 15 days from the date of issue of **LOA** or the first date of handing over the site whichever is later. Any delay in completing the work for reasons attributable to the Contractor is liable for liquidated damages as per clause 40 of NIT. Under the force majeure conditions or delay due to reasons beyond control of the contractor, UoA may grant suitable time extension without penalty for which the contractor has to request along with the justification/ reasons well in advance to UoA for approval without any prejudice to price escalation. No time extension request shall be considered after the expiry of completion period/contract. The decision of the Registrar, UoA regarding time extension will be final and binding on the contractor.

PARTICULAR SPECIFICATION & SPECIAL CONDITION OF WORK

1. EARTH WORK

Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machinery's and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.

2. RCC WORK

The work shall be done as per CPWD/PWD specifications.

- 2.1 If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided the cost of quantity of cement so less used shall be recovered from the contractor at the rate as per prevailing market rate. Decision of the University Engineer in regard to the quantity of cement which should have been actually used as per the schedule and recovery at the rate specified shall be final and binding on the contractor.
- 2.2 Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the University Engineer.
- 2.3 In case the contractor brings surplus quantity of cement the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the University Engineer.
- 2.4 Cement register for the cement shall be maintained at site.

PROFORMA FOR THE CEMENT REGISTER

PARTICULARS OF RECEIPT

Date of receipt	Quantity received	Progressive total	Date of issue	Quantity issued	Items of work for which issued
1	2	3	4	5	6

PARTICULARS OF ISSUE

Qty. returned at the end of the day	Total issued	Daily balance in hand	Contractor's initial	JE's initial	Remarks (AE/JE periodical check)
7	8	9	10	11	12

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2.5—**DESIGN MIX CONCRETE:**

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

2.5.1—Coarse aggregate: As per CPWD Specifications

2.5.2—Fine Aggregate: As per CPWD Specifications.

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

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

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

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

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

	Grade designation	Compressive strength on 15 cm cubes min. 7 days (N/mm ²)	Specified characteristic compressive strength at 28 days (N/mm ²)	Minimum cement quantity (Kg. per cum. Mtr.)	Maximum water cement ratio
i	M-25	As per design	25	As per CPWD specification/ BIS Code	0.50
ii	M-30	As per design	30		0.45
iii	M-35	As per design	35		0.45
iv	M-40	As per design	40		0.40

Note

- (i)—In the designation of a concrete mix letter M refers to the mix and number to the specified characteristic compressive strength of 15 cm x 15 cm x 15 cm cube 28 days expressed in N/mm²
- (ii)—The minimum/maximum cement content for design mix concrete shall be maintained as per the quantity mentioned above. In case where the quantity of cement required is higher than the minimum specified above to achieve desired strength based on an approved mix design extra shall become payable to the contractor.
- (iii)—Design slump has to be constantly monitored and maintained during placing of concrete through slump tests carried out as per CPWD

specification 2009 Vol. 1 for Mortar, Concrete and RCC works, and records maintained accordingly.

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

(i)—— IIT-BHU, IIT Kanpur

(ii)—— MNNIT Allahabad

(iii)—— HBTI Kanpur

(iv)—— Approved Lab/Govt. Engineering Institutions as directed by the University Engineer.

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

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

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

2.6—— **APPROVAL OF DESIGN MIX**

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

Where F_{ck} = Characteristic compressive strength of 28 days

—— s = Standard deviation which depends on degree of quality control

The degree of quality control for this work is "good" for which the standard deviation (s) obtained for different grades of concrete shall be as below:

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

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

- 2.7 All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor.
- 2.8 The batching plant shall conform to IS:4925. It shall have the facilities of presetting the quantity to be weighed with automatic cutoff when the same is achieved. Concreting at places may have to be resorted to through concrete pump for which nothing extra shall be paid.
- 2.9 All other operations in concreting work like Mixing, Slump, Laying Placing of concrete, compaction curing etc. not mentioned in this particular specification for Design Mix of concrete shall be as per CPWD specification.

2.10 WORK STRENGTH TEST TEST SPECIMEN

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

TEST RESULTS OF SAMPLE

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

Lot size

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

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

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

2.11 STANDARDS OF ACCEPTANCE As per CPWD specifications/IS 456 Code

- 2.12 In case of rejection of concrete on account of unacceptable compressive strength governed by para "Standard of Acceptance" as above the work for

~~which samples have failed shall be redone at the cost of contractors. However the University Engineer may order for additional test (like cutting cores, ultrasonic pulse velocity test, load tests on structure or part of structure etc.) to be carried out at the cost of contractor to ascertain if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The contractor shall take remedial measures necessary to retain the structure as approved by the University Engineer without any extra cost. However for payment the basis of rate payable to contractor shall be governed by the 28 days cube test results.~~

- ~~2.13 Only MS centering/shuttering and scaffolding material unless & otherwise specified shall be used for all RCC. Work to give an even finish of concrete surface. However marine ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor on approval by the University Engineer.~~
- ~~2.14 Necessary arrangements shall be made for field tests and all required equipment's shall be arrange by establishing field lab by the Agency for mandatory tests of the materials as specified in CPWD specifications or as per direction of University Engineer. No extra payment shall be paid on this account.~~

~~3 PRE-CAST RCC WORK~~

- ~~3.1 Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks, flats etc. And forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from University Engineer before taking up the work.~~
- ~~3.2 Pre-cast units shall be clearly marked to indicate the top of member and its locations.~~
- ~~3.3 Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.~~

~~4 SANITARY INSTALLATIONS, WATER SUPPLY AND DRAINAGE~~

- ~~4.1 The work of water supply and sanitary installations shall be got executed by the agency as approved by University Engineer.~~
- ~~(i) The entire plumbing drawing and sanitary installation drawing/ details shall be submitted by the contractor and got approved by the University Engineer before the execution.~~
- ~~(ii) The entire responsibility for the quality of work will however rest with the building contractor only.~~
- ~~4.2 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.~~
- ~~4.3 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.~~

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- 4.4 The contractor shall engage licensed plumbers for the work and the materials (fixtures/fittings) tested by the local Municipal Body/Corporation wherever required at his own cost. Nothing extra shall be paid/reimbursed for the same.
- 4.5 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.
- 4.6 The work in general shall be carried out as per CPWD specifications. Rate includes all materials, labour and all the operations mentioned in the respective items unless and otherwise specifically mentioned.
- 4.7 The contractor shall give a satisfactory performance test of the entire installation (s) before the work is finally accepted and nothing extra shall be payable to the contractor on this account.
- 4.8 The contractor shall be responsible for all the protection of sanitary, water supply fittings and fixtures against pilferage and breakage during the period of installation until the completion / handing over of the work.
- 4.9 The contractor shall submit completion plans for water supply internal sanitary installations and building drainage work within thirty days of the date of completion. These plans are to be submitted on drawings prepared preferably through computers (1 original copy + 3 photocopies) on suitable scales to show the general arrangement and desired details.

5 WATER PROOFING TREATMENT

The contractor shall associate himself with the specialized firm, to be approved by the University Engineer in writing, for water proofing treatment for basement/lower ground floor, underground tank and on roofs. Guarantee in the prescribed proforma attached with tender document shall be given by the specialized firm, for a period of 10 years from the date after the maintenance period prescribed in the contract, which shall be counter signed by the contractor as token of overall responsibility. In addition 10% (ten percent) of the cost of water proofing items shall be retained as guarantee to watch the performance of the work done. However half of this retained amount will be released after five years, if the performance of the work done is found satisfactory. If however any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of intimation. In case it is not attended to, the same will be got done by another agency at the risk and cost of the contractor. This guarantee deposit can however be released in full if a bank guarantee of equivalent amount for 10 years is produced and deposited with the department by the contractor.

SPECIAL TERMS AND CONDITIONS

1. Makes of ductable air conditioners will be to the list of approved makes given. No other makes will be used by the contractor.
2. Contractor will first submit shop drawings for the installation of air conditioners for approval of the university authority before execution of work.
3. Contractor will submit the all warrantee card of the equipments installed for availing the warrantee after defect liability period. .
4. The defect liability of the work will be two years from the date of handing over the work.
2. 5. Makes of various paints to be used by contractor will be according to the list of approved makes given. No other makes will be used by the contractor.
3. No mixing will be allowed with stainer to achieve a particular colour. Contractor will procure direct colour paint of approved shade and apply directly.
4. Contractor will thoroughly clean all paint marks left here and there due to spilling and splashes of paint at no extra cost.
5. Contractor's job will also include removing of all malba and debris arising in the process of painting including washing of floor to remove stains of paint, at no extra cost.
6. No extra measurement factor will be applied for measurement of paint done on sand faced and rough cast plaster. Contractor will be paid on the basis of plain elevational area. Contractor, if he so desires can visit the site and see the actual surfaces of walls before quoting.
7. Contractor will arrange proper ladders, scaffolding and jhoolas (for painting at higher levels) at his own cost and will take all safety measures like safety belts, extra labour to hold ladders/Jhoolas etc. If it is observed that work is proceeding without adequate safety precautions, work may be stopped by UoA engineer and in such cases, contractor will be solely responsible for delay and its consequences thereof.
8. Contractor shall provide manufacturer's certificate for the material supplied at site and contractor shall bring 75% of theoretical quantity of required painting material before start of work.

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LIST OF PREFERRED MAKES FOR CIVIL WORKS

S.No.	Material description	Approved Manufacturer / Brand Name
1.	TMT bars—Fe 500D	SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd and Jindal Saw Ltd
2.	Cement (PPC)	A.C.C., Ultratech, Vikram, Shri cement, Ambuja, Jaypee Cement, Century Cement & J.K. Cement
3.	Ceramic/glazed Tiles	Kajaria, Johnson, Somany, NITCO, ORIENT BELL of approved design, color and shade.
4.	White Cement	Birla White, J.K. White or equivalent.
5.	Primers, paints (Low VOC) (i/c water proofing cement paint) etc.	Nerolac, Asian, Burger, ICI
6.	Putty	Birla, J.K. Putty or equivalent.
7.	Wash Basin and WC PAN	Parryware, Hindware, Johnson, Cera, Somany (For Vitreous China).
8.	Clear glass	Modi Guard, Saint Gobain, AIS
9.	G.I. pipes and accessories	Tata, Jindal, Prakash Surya, APL Apollo, NVR GI pipe fittings.
10.	Centrifugally Cast Iron Spun Pipes & fittings	ISI marked product, firm having valid BIS license.
11.	DI Pipes & fittings	Kesoram, Electrosteel
12.	Brass / CP Brass fittings	Parryware, Jaquar & Hindware,
13.	Aluminium sections (Anodising by approved anodizing firm)	Hindalco, Jindal, Indian Aluminium Co.
14.	Water proofing compound	WEBER, FOSROC, PIDILITE, CICO
15.	Stainless steel sink	Neelkanth, Nirali, Jayna, PRAYAG
16.	Particle board i/c laminated	BHUTAN, ECO BOARD, MERINO
17.	Plastic W.C. seat cover	Parryware, Hindware, Johnson
18.	PVC tanks	Sintex or As approved by University Engineer.
19.	Mirrors	Saint Gobain & Modi Guard, HNG
20.	CP waste & flush pipes	As approved by University Engineer.
21.	PVC flushing cistern.	Parryware, Hindware, Johnson.
22.	Tile Fixer / Adhesive	As approved by University Engineer.
23.	Vitreous Floor Tiles	Johnson, Kajaria, SOMANY, NITCO, ORIENT BELL
24.	Ready Mix Concrete	Ultratech concrete, ACC Ready Mix, Lafarge concrete, RMC India or as approved by University Engineer.
25.	Acrylic Exterior Paint	Asian Paint —APEX ULTIMA, BURGER-WEATHER COAT, ICI DULEX —WEATHER SHIELD MAX

Specification to be followed for execution of work.***For Electrical Items of Work:***

CPWD General Specification for electrical work 2013 part-I internal with up to date correction slips.(Hereinafter called CPWD specifications also) IE Rules, Indian Standards amended upto date, 1994 for External & 2013 for sub-station amended up to date and PWD Specifications..



ANNEXURE-1-IEI

List of mandatory machinery, tools and plants & testing Equipment to be deployed by the contractor at site

- | | | |
|-----|---|---------------|
| 1. | <i>Steel/Aluminium Ladder 1.5 m to 8 m.</i> | <i>2 Nos.</i> |
| 2. | <i>Chase cutting machines.</i> | <i>2 Nos.</i> |
| 3. | <i>Electrical wire drawing equipment.</i> | <i>2 Set.</i> |
| 4. | <i>Torque wrench for nut/bolt/screws.</i> | <i>2 Nos.</i> |
| 5. | <i>Conduit die set.</i> | <i>2 Set.</i> |
| 6. | <i>Pipe vice.</i> | <i>1 No.</i> |
| 7. | <i>Bench vice.</i> | <i>1 No.</i> |
| 8. | <i>L.T.Megger 500/1000 volts.</i> | <i>1 No.</i> |
| 9. | <i>Tong Tester.</i> | <i>1 No.</i> |
| 10. | <i>Multimeter.</i> | <i>1 No.</i> |
| 11. | <i>Hydraulically operated & hand operated crimping machine.</i> | <i>1 No.</i> |
| 12. | <i>Earth tester.</i> | <i>1 No.</i> |
| 13. | <i>Portable Ordinary drilling machine.</i> | <i>2 Nos.</i> |
| 14. | <i>Portable Hammer drilling machine.</i> | <i>2 Nos.</i> |
| 15. | <i>Overhead conduit puller.</i> | <i>1 No.</i> |

ADDITIONAL SPECIFICATION

1- *The work shall be carried out strictly in accordance with CPWD specifications for Electrical Works 2013 & External Work-1994 and in accordance with Indian Electricity Rules, 1956, Indian Electricity Act, 2003 as amended up to date, PWD specifications and as per instructions of the Engineer-in-Charge including as below and nothing will be paid extra.*

- (a) *All material shall be got approved from Engineer-in-Charge before use. One sample flat/Bay shall be made for approval of final location of switch boards/ fittings etc. and then only work shall be executed in other flats/bays.*

All damages done to the building during execution of Electrical work shall be the responsibility of the contractor and the same will be made good immediately at his own cost to the satisfaction of the Engineer-in-Charge. Any expenditure incurred by the department in this condition shall be recovered from the contractor and decision of the Engineer-in-Charge about recovery shall be final.

- (b) *All hardware items such as screws, thimbles, G.I. wires etc. which are essentially required for completing an item as per specifications will be deemed to be included in the item even when the same have not been specifically mentioned. All hardware materials such as nuts/bolts/screws/ washers etc. to be used in the work shall be zinc/cadmium plated iron.*

- (c) *CONDUIT LAYOUT shall be prepared by contractor and got approved before execution of work. In case contractor does not do so before start of work, recovery @ 2(two)% of tendered amount of IEI work shall be made from the bill. Minimum No. of Junctions to be kept, & if required junctions to be kept underneath the fitting locations in corridor/rooms so that junctions are not visible after fittings are fixed/in position. Drop of conduit shall be well planned w.r.t. location of fitting/D.B. and criss crossing to be avoided. All chases in walls shall be cut using electrical chisels/cutters. For this purpose electricity shall be arranged by contractor. In case contractor fails to do chase cutting by electrical chisels/cutters and resorts to manual methods, a recovery of Rs.50/- per point shall be made from contractor's bill.*

Whenever point wiring items is executed in casing capping system PVC box of PRESTOTEAK or equivalent make shall be provided in place of MS box.

In case cable in the lift shaft is also to be fixed, contractor shall have to liaison with CIVIL/Lift agency to make use of the scaffolding provided by them.

- (d) *Any conduit which is not to be wired by the contractor shall be provided with GI fish wire for wiring by some other agency subsequently . Nothing extra shall be paid for the same.*

Copper wire upto 4 sqmm. may be single stranded or multi stranded whereas wires above 4 sqmm. shall be multi-stranded conductor. Termination of multi-stranded conductors shall be done using crimping type thimbles at both the ends. Nothing extra shall be paid for the same.

- (e) *All metal boxes to be applied primer and painted, then only should be installed else recovery @Rs.20/- per point should be made from contractor's bill. Boxes shall have socket arrangement for tightening screws, instead of simple holes in M.S.sheet. Boxes shall be again painted at the time of wiring.*

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- (f) *For Submain Wiring, Colour Code for different phases and Neutral (R.Y.B. black) to be maintained. While circuit wiring, wiring for fan point, wiring for light point shall be done with different colours for easy identification. Wiring for neutral shall be done with black colour and all connections to fans & fittings wherever visible shall be made with white PVC insulated copper wire or wherever cover sleeve may be provided. At Switch board, Switch shall be fixed in a logical manner w.r.t. fittings layout.*
- (g) *Unless specifically approved by the University Engineer as per the recommendations of AE(EI)/JE(EI), loose wire box, above DB shall not be provided however DB's shall have loose wire box of same make.*
- All connections to MCB's shall be made using thimble/lugs.*
- All DB's i/c incoming & outgoing MCB's shall be suitably numbered with PAINT for location/circuits. DB shall be fixed in recess suitably (30 mm. approx. projected from unplastered wall) to ease opening of door. Top of DB to match with door frame height as per site conditions.*
- (h) *Phenolic laminated sheet shall be of Egg white colour, and shall be filed/rounded at edges and of minimum 3mm thick.*
- (i) *All fittings and fans should be properly earthed through the protective conductor. Provision of earth bars in main boards, earth terminal block in DB's & earth studs in all metal boxes shall be made, connection to this stud shall be crimped. A clamp type termination should be made in the termination of earth strips (where provided) to pipe electrodes to provide surface type contact.*
- (j) *The earthing shall be carried out in the presence of the Engineer-in-charge or his authorized representative.*
- (k) *The size at switch box for providing Modular Plate type Switch/Socket shall be properly settled to take care of all necessary switches/screws/fan regulators. Blanking plate if required shall also be provided at no extra cost.*
- (l) *For point wiring in steel conduit all piano type switches or all modular type switches/sockets/telephone outlets/T.V.outlets shall be of only one make.*
- (m) *Whenever supply items like fans & fittings etc. are also included in the Schedule of work, such items shall be executed only after completion of atleast 75% of the wiring items.*
- (n) *The contractor shall make his own arrangement at his own cost for electrical/general tools and plants required for the work.*

2- *The work shall be carried out according to approved drawings/details which shall be subsequently issued to the successful tenderer for execution of work and as per instructions of the Engineer-in-Charge who will have the right to change the layout as per requirement at site and the contractor shall not have any claim due to change in layout.*

The work shall be carried out in engineering like manner. The bad workmanship will not be accepted and defects shall be rectified at contractor's cost of the satisfaction of the Engineer-in-Charge. The programme of electrical works are to be co-ordinate in accordance with the building work and no claim for idle labour will stipulated in the tender, electrical work shall have to be completed alongwith completion of civil work.

All the debris of the electrical works should be removed and the site should be cleared by the contractor immediately after the accruing of debris. Similarly any

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rejected material should be immediately cleared off from the site by the contractor.

Watch and ward of the material/equipment shall be the responsibility of the contractor till handing over of installation to the department.

The contractor or his representative is bound to sign the site order book as and when required by the Engineer-in-Charge and to comply with the remarks therein.

- 3- *The entire installation shall be at the risk and responsibility of the contractor until these are tested and handed over to the department. However if there is any delay in construction from the department side, the installation may be taken over in parts, but the decision on the same shall rest with Engineer-in-Charge which shall be a binding on the contractor.*

Some of the items of work, if already executed: on that case the successful tenderer shall have to use these items for completing the work. For wiring, the existing conduit wherever required shall be used by the contractor. The recovery will be made for these items as accepted rate of similar items.

- 4- *The secured advance is not allowed.*
- 5- *Test Certificate Test certificate(if required) for the work carried out shall also be submitted failing which recovery @1% tendered amount (electrical component) shall be made from final bill.*
- 6- *Panels: Drawing of panel shall be submitted for approval within 30 days from award of work and fabrication to be taken up only after approval of such drawing. Before painting proper surface treatment shall be done and than powder coated. These shall be offered for inspection during fabrication.*
- 7- *Quantities indicated in Schedule of work are only tentative; contractor shall consult AE-in-Charge before procurement. Payment shall be made only for the quantities actually executed and measured.*
- 8- *Time Period: Contractor has to plan his activities, so that electrical work is to be carried out in close co-ordination with CIVIL work and in no case CIVIL work be delayed because of delay in electrical work and the work has to be completed accordingly.*
- 9- *The makes for items shall be as per list attached.*
- 10- *Storage: Responsibility for storage space for execution of work shall be of main contractor.*
- 11- *Power & Water Supply: Responsibility for supply of power and water for execution of work shall be of main contractor.*
- 12- *Material to be used in the work shall be ISI marked as applicable. The material in required quantity to be used in the work shall be got approved from the Engineer-in-charge before its use at site. The Engineer-in-charge shall reserve the right to instruct the contractor to remove the material which, in his opinion, is not as per specifications.*

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- 13- *Contractor shall preserve the copies of invoices, test certificates; gate passes etc. to prove the genuineness of material/purchases. The responsibility of procurement, genuine material of specialized works shall rest with the contractor.*
- 14- *Contractor is advised to visit site before quoting rates for determining site conditions. No claim or argument shall be entertained in this regard at later stage.*
15. *Before execution of work the contractor will submit the shop drawings for the installation of air conditioners for approval of the university authority..*



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Acceptable Makes for Internal Electrical Installations

(1)	PVC insulated copper wires i/c Control cables, TV/ Telephone Cable	KEI/Universal/Nicco/R.R.Kable/Finolex/Lapp Kabel/L&T/Havells/Paramount/Plaza/Skytone/Gloster
	XLPE insulated PVC sheathed Al. Cable upto 1.1 KV grade.	Polycab/Finolex/L&T/Universal/Rallision/Nicco/KEI/Grandlay/Gloster/Bonton/Havells/Paramount/Plaza.
(2)	PVC conduit including its accessories.	Precision/Asian/Diamond/Modi/AKG.
(3)	MS Conduit & Accessories	BEC/ AKG/NIC/Steel Kraft /M-Kay/JPC
(4)	MCCB, Timer, SFU, FSU, HRC Fuses, Cable Management System/DLP Trunking.	Siemens/L&T/Schneider/MDS-Legrand/ ABB/C&S/Bhartiya Cutler Hammer.
(5)	Piano Switches/ Sockets/ T.V./Telephone Outlet	Anchor/Rider/Leader / Havells.
(6)	Modular type Switches/ Sockets T.V./Telephone Outlet/ Call bell/Buzzer	Legrand/Siemens/L&T/ ABB/Moeler/ M.K./Anchor/Havells/Philips.
(7)	Ammeter/Voltmeter	AE/IMP/Rishabh/HPL. (Only Digital type to be used)
(8)	Selector Switch	Kayee/Siemens/Bhartiya Cutler Hammer/ L. & T.
(9)	Change over Switch	HPL/H-Elcon./Standard/L. & T./ Siemens.
(10)	Indicating Lamps	Teknic/Siemens/L & T./Vaishnov.
(11)	Panel Board/Feeder Pillar/Meter Board	Tricolite Electric Industries (Pvt.)Ltd./ Advance Panel and Switchgears Pvt.Ltd./ Adlec Mundka/ Associated Switch gears Projects Ltd./Prestine/ Neptune/Sudhir Gensets Ltd./ Advance Power Control System Pvt.Ltd./Control & Switch gears Pvt.Ltd./Sterling Willson/ Milestone/Unilec.
(12)	Rising Main	L & T/MDS-Legrand/C&S/ Schneider/GE.
(13)	Energy Meter/ Multifunctional/Intelligent Energy Meter.	Siemens/HPL/L&T/Hensel/Anchor/Havells.
(14)	G.I.Pipe	Jindal Hissar / TATA / SAIL / TT Swastik
(15)	Fluorescent / CFL/LED/Flood Light/Street Light fitting.	Philips/ Crompton/ Bajaj/ Havells
(16)	Lamps.	GE/Osram/Philips/Crompton/Bajaj/Wipro/ Havells
(17)	Angle Holder/Batten Holder	ISI marked Kinjal/Emperor/Anchor/ Havells
(18)	GEYESER	Racold/Bajaj/Crompton/Jaguar/ Havells
(19)	Internet Cable	D-Link/Avaya/Lucent/Finolex/HCL.
(20)	MCB & MCB DB.	L&T/Schneider/MDS-Legrand/ ABB/C&S/Hager/Havells.
(21)	Ceiling Fan/ Exhaust Fan (Only energy efficient Fans, consuming ≤ 50 W and CMM ≥ 200 for 1200 mm & 60 W and CMM ≥ 240 for 1400 mm shall be used).	Crompton/Orient/Polar/Khaitan/Bajaj/Ortem/Usha/ Havells.
(22)	Ductable Air Conditioners, Inverter type, R22 refrigerant, copper coiled, BEE certified	Daikin, Mitsubishi , O General or equivalent.

If any item not covered under the above table the same will be decided by Engineer-in-charge.



PART C



PART-C
FINANCIAL BID
SCHEDULE OF QUANTITY

Name of work:- S/f of Duct able type Air Conditioners for Accounts office, UoA.

S.No.	Description	Qty.	Unit	Rate (Inclusive of taxes)	Amount
01.	S/F Ductable type AC Unit 8.5 Tr.IDU / ODU BEE 5 star rating Make-Daikin/Mitsubishi/O-General or equivalent with proper stand, hanging system, etc. in all respect.	04	Nos.		
02.	S/F of Ductable type AC Unit 5.5 Tr.IDU/ODU BEE 5 star rating Make-Daikin/Mitsubishi/O-General or equivalent with proper stand, etc. in all respect etc. .	02	Nos.		
03.	S/F of additional Refrigerant piping & Insulation with complete in all respect	120	Mtr.		
04.	S/F of Drain piping 25mm dia complete in all respect	100	Mtr.		
05.	S/F Duct work (GI sheet metal ducting of proper gauge as per standard air conditioning work) complete in all respect	45	Per ton		
06.	S/F of electric cable of proper size commensurate to the power consumption of the respective capacity of ductable Air Conditioner as per BIS norms and complete in all respect.	240	Mtr.		

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