ALL INDIA INSTITUTE OF MEDICAL SCIENCES, RAIPUR

OFFICE OF
THE EXECUTIVE ENGINEER
PROJECT CELL AIIMS, RAIPUR

NOTICE INVITING e-TENDER

N.I.T. NO. 47/EE/AIIMS/RPR/2018-19(2nd Call) **Date- 18 -06 -2019**

NAME OF WORK: -"Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G."

ESTIMATED COST: **Rs. 43,27,700.00/-**
EARNEST MONEY: **Rs. 87,000.00/-**
CONTRACT PERIOD: **Two (02) Months**

18-6-19
Accounts Officer-I
AIIMS, Raipur

BO & Checked
Junior Engineer (Civil)
AIIMS, Raipur

18.06.2019 (JAA)

18/6/2-19
Executive Engineer (Civil)
Project Cell, AIIMS, Raipur

खंडन

यह निविदा अखिल भारतीय आयुर्विज्ञान संस्थान, रायपुर (छ.ग.) के लिये बोलीदाताओं/फर्म/एजेंसी इत्यादि से प्रस्ताव नही बल्कि प्रस्ताव प्राप्त करने का निमंत्रण है संविदात्मक दायित्व तब तक नही होगा जब तक औपचारिक अनुबंध पर हस्ताक्षर नही किया जाता और चयनित बोलीदाताओं/फर्म/एजेंसी इत्यादि के साथ एम्स रायपुर के विधिवत अधिकृत अधिकारियों के द्वारा निष्पादित किया गया हो।

DISCLAIMER

This tender is not an offer by the All India Institute of Medical Sciences, Raipur, but an invitation to receive offer from bidders/firm/agency etc. No. contractual obligation whatsoever shall arise from this tender process unless and until as formal contract is signed and executed by duly authorised officers of AIIMS, Raipur with the selected bidder/firm/agency.

Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:
https://eprocure.gov.in/eprocure/app.

REGISTRATION

1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://eprocure.gov.in/eprocure/app) by clicking on the link "Online bidder Enrollment" on the CPP Portal which is free of charge.
2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

PREPARATION OF BIDS

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the
3) Number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
4) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
5) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or ''Other Important Documents'' area available to them to upload such documents. These documents may be directly submitted from the

"My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

SUBMISSION OF BIDS

1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
3) Bidder has to select the payment option as "offline" to pay the tender fee / EMD as applicable and enter details of the instrument.
4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
7) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
8) The documents being submitted by the bidders would be encrypted using PKI encryption all techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key.
9) Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
10) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
11) Upon the successful and timely submission of bids (ie after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
12) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

ASSISTANCE TO BIDDERS

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
2) **Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk number 0120-4200462, 0120-4001002.**

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Name of Work: - **Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)**

Sub Head - **Civil work i/c Sanitary Installation, Water supply etc.**

This N.I.T. is approved for ₹ **4327700/-(Rupees Forty-three Lakh Twenty Seven Thousand Seven Hundred Only).**

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

The Executive Engineer, Project Cell, AIIMS, Raipur on behalf of the Director, AIIMS, Raipur invites online **percentage rate bids** in a **single bid system (Technical & Financial)** from approved/registered and eligible contractors of CPWD, MES, BSNL, Chhattisgarh State PWD having successfully completed works of similar nature as per eligibility condition for the following works: -

S. No.	Description	Details
(a)	NIT No.	**47/EE/AIIMS/RPR/2018-19 (2nd Call)**
(b)	Name of Work:	"Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.) **Sub Head** - Civil work i/c Sanitary Installation, Water supply etc.
(c)	Estimated Cost	Rs. **43,27,700.00/-** **(Rupees Forty-Three Lakh Twenty-Seven Thousand Seven Hundred Only)**
(d)	Earnest Money	**Rs. 87,000.00/-** **(Rupees Eighty-Seven Thousand Only)**
(e)	Period of Completion	**02 (TWO) Months**
(f)	Last date and time of online submission of tender	By **08-07-2019 at 12: 00 Hours** through online.
(g)	Time and date of online opening of Technical Bid	**On 09-07-2019 at 12: 30 Hours.**
(h)	Time and date of opening of Online Financial Bids	**On 09-07-2019 at 12: 30 Hours.**
(j)	Period during which hard copies of EMD (in Original), Registration Certificates, Undertaking and other Documents to be submitted to Division office by the Bidders for reference. However, the Eligibility will be considered as per uploaded documents.	To be submitted during Office hours before opening of Bid.

1. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
2. Information and Instructions for bidders posted on website shall form part of bid document. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website https://eprocure.gov.in/eprocure/app or www.aiimsraipur.edu.in free of cost.
3. 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 favour of "AIIMS, Raipur"**.
4. The experience of similar work should be from Central Govt., State Govt., PSU and Autonomous Body.

5. Three similar works, each of value not less than 40% or Two similar works each of value not less than 60% or one similar work of 80% of estimated cost put to tender in last 07 (Seven) Years up to the date of receipt of tender. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 07% per annum, calculated from the date of completion to the last date of receipt of tender.
6. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online tendering process as per details available on the website.
7. The intending bidder must have valid class-III digital signature to submit the bid.
8. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
9. Contractor can upload documents in the form of JPG format and PDF format.
10. (i) The EMD can be paid in the form of Treasury Challan or Demand Draft or Pay Order or Banker's Cheque or Deposit at Call Receipt or Fixed Deposit Receipts along with Bank Guarantee of any Scheduled Bank drawn **in favour of "AIIMS, Raipur" as detailed in Para 8 of CPWD -6**. The intending bidder has to scan and upload this document for payment of EMD to e-tendering website within the period of bid submission.
    (ii)Online bid documents submitted by intending bidders shall be opened only of those bidders, whose Earnest Money Deposit and other documents scanned and uploaded are found in order.
11. In Percentage Rate Tender the bidder shall quote percentage (up to two places of decimals only) below/above (in figures as well as in words) at which he will be willing to execute the work.

12. The Eligibility bid shall be opened first on due date and time as mentioned above. The time and date of opening of financial bid of contractors qualifying the eligibility bid shall be communicated to them at a later date.

13. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criteria.

14. **Procedure for dealing with ambiguities in rates:-**

    (i) In item rate tender, intending bidder can quote his rates in figures only and the rates in words, amount of each item and total is generated automatically. In case of any ambiguity, the rate quoted by the bidder in word shall be taken as correct.

    (ii) In percentage rate tender, the tendered percentage quoted in words shall be taken as correct.

    (iii) In lump sum tenders the amount quoted in words shall be taken as correct.

15. GST shall mean Goods and Service Tax- Central, State and inter State.

16. **If the bidder is a firm in partnership, the application shall be signed by all the partners of the firm above their full typewritten names and current addresses, or, alternatively, by a partner holding power of attorney for the firm. In the later case a certified copy of the power of attorney should accompany the application. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should accompany the application. If the bidder is a limited company or a corporation, the application shall be signed by a duly authorized person holding power of attorney for signing the application accompanied by a copy of the power of attorney. The bidder should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.**

17. **List of Documents to be scanned and uploaded within the period of bid submission (All the uploaded documents should be clearly legible):**

(i) Scanned copy must be uploaded for Demand Draft/Pay order/bankers cheque of any scheduled Bank against EMD in favour of AIIMS, Raipur. (EMD will be retained of successful bidder and will be released after submission of 5% Performance guarantee of quoted cost.)

(ii) Appendix A, B & C duly filled in (Pages 9-10) and signed.

(iii) Certificate of Registration for Goods & Service Tax (GST) and acknowledgement of upto date filed return. If the bidder has not obtained GST registration in the state in which the work is to be taken up, then in such a case the bidder shall upload following undertaking with the bid document. "If work is awarded to me, I/we shall obtain GST registration certificate within one month from date of receipt of award letter or before payment of 1st R.A. Bill".

(iv) Signed copy of the Integrity Pact .

(v) Any other document as specified in the press notice.

Appendix 'A'

FORM FOR FINANCIAL INFORMATION
(Financial Analyses)

Details to be furnished duly supported by figures in Balance Sheet/Profit & Loss Account duly Certified by the Charted Account, as submitted by the applicant to the Income Tax Department (copies to be attached).

Ser. No.	Description	2015-16	2016-17	2017-18

Note: Gross Annual Turn Over only.

Appendix 'B'

FORM FOR DETAILS OF ALL WORKS OF SIMILAR CLASS COMPLETED DURING THE LAST SEVEN YEAR

Sl. No.	Name of Work/ Project	Location	Owner or Sponsoring Organization	Cost of Work in Lakhs	Date of Commencement as per Contract	Stipulated date of Completion	Actual date of Completion	Litigation/ Arbitration pending/ In progress with details	Remarks
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
1.									
2.									
3.									
4.									
5.									

Appendix 'C'

FORM FOR DETAILED INFORMATION BY BIDDER

1. Name of Firm/Contractor/Supplier :
2. Complete Address and Telephone Number :
3. Name of Proprietor/Partner/Managing Director/Director :
a) An Individual :
b) A Proprietary firm :
c) A firm in partnership :
d) A limited company or Corporation :
4. Name and address of service centre nearby Raipur :
5. Whether the firm is a registered Firm : (Yes/No. Attach Copy of Certificate)
6. PAN Number. : (enclose the attested copy of PAN Card)
7. GST Number : (enclose the attested copy of GST Certificate)
8. Whether the firm has Uploaded the Bank Draft/Pay Order/ : Banker's Cheque of Earnest Money Deposit (EMD).
9. Whether the Firm/Agency as signed each and every page of : Tender/NIT
10. Any other information, if necessary. :

(Authorized Signature of the Bidder with Seal)

CPWD - 6

AIIMS RAIPUR
Notice Inviting Tender

1. The Executive Engineer, Project Cell, AIIMS, Raipur on behalf of the Director, AIIMS, Raipur invites online **percentage rate bids** in a **single bid system (Technical & Financial)** from approved/registered and eligible contractors of CPWD, MES, BSNL, State PWD having successfully completed works of similar nature as per eligibility condition for the work:
"Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)
Sub Head - Civil work i/c Sanitary Installation, Water supply etc.."

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 a cost of : ₹ **43,27,700/-** ,. This estimate, however, is given merely as a rough guide.

1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal with all matters relating to the invitation of bids.

For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidder will correspond to the combined estimated cost of different components put to bid.

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

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

1. Agreement shall be drawn with the successful bidder on prescribed Form No. CPWD 7 modified amended upto last date of receipt of tender, which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in. Bidder shall quote their rates as per various terms and conditions of the said form which will form part of the agreement.

2. The time allowed for carrying out the work will be **2 Months** from the date of start as defined in Schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

3. (i) The site for the work is available. .....*.....

OR

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

(ii) ~~The architectural and structural drawing for the work is available~~

OR

The architectural and structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of the work.

4. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form, 2014 can be seen on website **www.tenderwizard.com/CPWD** or **www.cpwd.gov.in** or **www.eprocure.gov.in** free of cost.

5 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.

6. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.

7. The competent authority on behalf of Director, AIIMS Raipur 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.

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 of a Scheduled Bank (drawn in favour of **AIIMS, Raipur)** 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 Executive Engineer, inviting bids within the period of bid submission.

   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 120 days or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

   Copy of Enlistment Order and certificate of work experience and other documents as specified in the press notice 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 press notice shall have to be submitted by the lowest bidder only within a week physically in the office of tender opening authority.

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

   The bid submitted shall be opened at…… ....*……..... on ….....*…….....

   Interested contractor who wish to participate in the bid has also to make following payments within the period of bid submission:

   (i) e-Tender Processing Fee - Rs. . ..*.. shall be payable to M/s ITI Limited through their e-gateway by credit / debit card, internet banking or RGTS/NEFT facility.

9. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:
   (i) The bidder is found ineligible.
   (ii) The bidder does not deposit original EMD with Division office.
   (iii) The bidder does not upload all the documents (including GST registration) 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 bid 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 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 5% (Five Percent) of the bid 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. 10000/-)~~ or Deposit at Call Receipt of any Scheduled Bank/Banker's Cheque of any Scheduled Bank/Demand Draft of any Scheduled Bank/Pay Order of any Scheduled Bank (in case 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, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The Earnest Money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. **The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses / registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the sub contractors, if any engaged by the contractor for the said work and programme chart (Time and progress) within the period specified in Schedule 'F'**

11. The description of the work is as follows:

The scope of works include: "Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)
Sub Head - Civil work i/c Sanitary Installation, Water supply etc."

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 bids. 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 it has read this notice and all other contract documents and has made itself 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 it by the Government and local conditions and other factors having a bearing on the execution of the work.

12. The competent authority on behalf of **the Director, AIIMS, Raipur** 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 bidder shall be summarily rejected.
13. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bid submitted by the contractors who resort to canvassing will be liable to rejection.
14. The contractor shall not be permitted to bid for works in the AIIMS, Raipur responsible for award and execution of contracts, in which its near relative is posted as a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). It shall also intimate the names of persons who are working with it in any capacity or are subsequently employed by it and who are near relatives to any Gazetted officer in AIIMS , Raipur or in the Ministry **of Family Welfare**. Any breach of this condition by the contractor would render it liable to be removed from the approved list of contractors of this Department.
15. 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 previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of its 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.
16. The **bid for the works shall remain open for acceptance for a period of 30 days (thirty days)** from the date of opening of eligibility bid. If any bidder withdraws its 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 bidders shall not be allowed to participate in the re-bidding process of the work.**
17 The Eligibility bid shall be opened first on due date and time. The time and date of opening of financial bid of contractors qualifying the eligibility bid shall be communicated to them at a later date.
18. This Notice Inviting Bid shall form a part of the contract document. The successful bidder, on acceptance of its tender by the Accepting Authority shall within 10 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 amended / modified upto last date of receipt of bid.

INTEGRITY PACT

To,

Sub: NIT No. **47/EE/AIIMS/RPR/2018-19** for the work of **"Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)**
Sub Head - Civil work i/c Sanitary Installation, Water supply etc."

Dear Sir,

It is here by declared that AIIMS, Raipur is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender / bid documents, failing which the tenderer / bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the AIIMS, Raipur.

Yours faithfully,

Executive Engineer

* To be filled in by Executive Engineer, AIIMS Raipur Project Cell

INTEGRITY PACT

To,

The Executive Engineer,

Sub: Submission of Tender for the work: - **"Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)**
Sub Head - Civil work i/c Sanitary Installation, Water supply etc."

Dear Sir,

I / We acknowledge that AIIMS, Raipur is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I / We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by AIIMS Raipur. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, AIIMS Raipur shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)

To be signed by the bidder and same signatory competent / authorised to sign the relevant contract on behalf of AIIMS Raipur

INTEGRITY AGREEMENT

This Integrity Agreement is made at ..... on this ..... day of..... 20

BETWEEN

Director, AIIMS Raipur represented through Executive Engineer, AIIMS Raipur Project Cell, Raipur.

(Name of Division)

Project Cell (Chhattisgarh), (Here in after referred as the

(Address of Division)

'Principal / Owner', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

(Name and Address of the Individual/firm/Company)

through.....(hereinafter referred to as the (Details of duly authorized signatory)

"**Bidder/Contractor**" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal /Owner has floated the Tender (NIT No.....) (hereinafter referred to as "**Tender/Bid**") and intends to award, under laid down organizational procedure, contract for

(Name of work) ..... hereinafter referred to as the "**Contract**".

AND WHEREAS the Principal / Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "**Integrity Pact**" or "**Pact**"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal / Owner

1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal / Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC) / Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal / Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder (s) / Contractor (s)

1) It is required that each Bidder / Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

2) The Bidder(s) / Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

a) The Bidder(s) / Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal / Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

The Bidder(s) / Contractor (s) will not enter with other Bidder (s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications,

subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

b) The Bidder(s) / Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s) / Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

c) The Bidder(s)/ Contractor(s) of foreign origin shall disclose the names and addresses of agents / representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

d) The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose (with each tender as per performa enclosed) any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract

3) The Bidder(s) / Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

4) The Bidder(s) / Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice **means a willful misrepresentation or omission of facts or submission of fake / forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.**

5) The Bidder(s) / Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his / her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal / Owner

shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder / Contractor accepts and undertakes to respect and uphold the Principal / Owner's absolute right:

1) If the Bidder (s) / Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate / determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal / Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**

2) **Forfeiture of EMD / Performance Guarantee / Security Deposit**:

If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder / Contractor.

3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code (IPC)/Prevention of Corruption Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holding listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.

3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

1) The Bidder(s) / Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder / Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Sub-contractors/sub-vendors.

2) The Principal / Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

3) The Principal / Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor / Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, CPWD.

Article 7- Other Provisions

1) This Pact is subject to Indian Law, place of performance and jurisdiction is the **Head quarters of the Division** of the Principal / Owner, who has floated the Tender.

2) Changes and supplements need to be made in writing. Side agreements have not been made.

3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this **Integrity Agreement/ Pact or interpretation** there of shall not be subject to arbitration.

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender / Contract documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

(For and on behalf of Principal/Owner)

(For and on behalf of Bidder/Contractor)

WITNESSES:

1. . ..... (Signature, name and address)

2. . ..... (Signature, name and address)

Place: -

Dated: -

CPWD 7/8

GOVERNMENT OF INDIA
AIIMS Raipur

Percentage Rate tender & Contract for Works

Tender for the work of "Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)
Sub Head - Civil work i/c Sanitary Installation, Water supply etc."

(A)

To be submitted/uploaded by .....*.....hours on .....*.....to .....*...../upload at https://eprocure.gov.in/eprocure/app or www.aiimsraipur.edu.in

To be opened in presence of tenderers who may be present at ....*.....hours on .....*..... in the office of.....*.....

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 Director, AIIMS Raipur 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.

I/We agree to keep **the tender open for 30 (thirty)** days from the due date of opening of eligibility bid and not to make any modification in its terms and conditions.

A sum of ₹ **87,000/-** is hereby forwarded in Receipt Treasury Challan/ Deposit at **(DD/BG/FDR)/ Fixed Deposit Receipts of a Scheduled Bank/ Demand Draft of a Scheduled Bank/ Bank Guarantee issued by a Scheduled Bank as earnest money**. A copy of the earnest money in Receipt Treasury Challan/ Deposit at Call Receipt of a Scheduled Bank/ Fixed Deposit Receipts of a Scheduled Bank/ Demand Draft of a Scheduled Bank/ Bank Guarantee issued by a Scheduled Bank is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/we agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that President of India or his 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 Gurantee shall be guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I/we agree that in case of forfeiture of earnest money or performance guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

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

I/We hereby declare that I/we shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom 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.

Signature of Contractor**#**

Postal Address#
Witness : #
Address: #
Occupation : #

To be filled in by the contractor/witness as applicable

ACCEPTANCE

The above tender (as modified vide letters mentioned hereunder) is accepted by me for and on behalf of the President of India for a sum of ₹. ____*_____

(Rupees_____*_____)

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

a) *

b) *

c) *

For & on behalf of theTOR AIIMS, ,RAIPUR.

Signature .....

Dated ..... *.....

Designation .....

* To be filled in by Executive Engineer, AIIMS Raipur Project Cell, CPWD, Raipur.

[FOR MAJOR COMPONENT]

SCHEDULE 'A'

Schedule of quantities (As per PWD-3) (Enclosed)

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

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

SCHEDULE 'C'

Tools and plants to be hired to the contractor

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

SCHEDULE 'D'

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

SCHEDULE 'E'

1.	Reference to General Conditions of contract	General Conditions of Contract for CPWD Works, 2014 as amended upto CON/304
	Name of work :	**"Construction of 166 seat Lecture Theatre at Medical College, AIIMS, Raipur (C.G.)**
		Sub Head - Civil work i/c Sanitary Installation, Water supply etc.."
	Estimated cost of work	**Cost : ₹ 43,27,700/-**
	Earnest money:	**₹ 87,000/- (To be returned after receiving Performance Guarantee @5% of tendered value)**
	Performance guarantee :	5% of tendered value. निविदित मूल्य का 5 प्रतिशत
	Security Deposit:	2.5% of tendered Value

SCHEDULE 'F'

General Rules & Directions:

	Officer inviting tender -		**Executive Engineer (Civil), AIIMS Raipur Project Cell**
	Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3.		see below
	Definitions:		
2(v)	Engineer-in-Charge		**Superintending Engineer/Executive Engineer, AIIMS Raipur**
2(viii)	Accepting Authority		**Superintending Engineer/Executive Engineer, AIIMS Project Cell, Raipur (C.G.)**
2(x)	Percentage on cost of materials and labour to cover all overheads and profits.		**15% (Fifteen percent)**
2(xi)	Standard schedule of Rates	For Civil:-	**Delhi Schedule of rate 2016(Civil) with correction slips issued upto date of receipt of tender.**
2(xii)	Department		**AIIMS, Raipur**
9(ii)	Standard CPWD contract Form		CPWD Form 7 (Print edition -2014) as modified & corrected upto DG/CON/ 304

Clause 1

Time allowed for submission of performance guarantee, programme chart (Time & Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW welfare board or proof of applying There of: from the date of issue of letter of acceptance	: 10 days
Maximum allowable extension with late fee @ 0.10% per day of performance guarantee amount beyond the period as provided in (i) above	: 5 days

Clause 2	Authority for fixing	**Superintending Engineer/Director, AIIMS Raipur.**
Clause 2A	Whether clause 2A shall be applicable	**Yes**
Clause 5	No. of days from the date of issue of letter of acceptance for reckoning date of start	10 days.
Clause 6, 6A	Clause applicable:	**6 A**
Clause 7	Gross work to be done together with net payment/adjustment of advances for material collected, if any since the last such payment for being eligible to interim payment	**Rs. 10 Lakhs**

Clause10A

List of testing equipment to be provided by the contractor at Field Testing Laboratory

A. For Building Works:-

1. 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 gms.

2. **Ovens-electrically operated, thermostatically controlled upto 110°C - sensitivity 1°C.**
3. **Sieves: as per IS 460-1962.**
   (i) I.S. sieves - 450mm internal dia, of sizes 100 mm, 80 mm, 63mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75mm, complete with lid and pan.
   (ii)I.S. sieves- 200mm internal dia (brass frame) consisting of 2.36mm, 1.18mm, 600 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns, with lid and pan.
4. **Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.**
5. **Equipment for slump test- Slump cone, steel plate, tamping rod, steel scale, scoop.**
6. **Dial gauges, 25 mm travel - 0.01 mm/division least count - 2nos.**
7. **100 tonnes compression testing machine, electrical-cum manually operated.**
8. **Graduated measuring cylinders 200 ml capacity - 3 Nos.**
9. **Enamel trays (for efflorescence test for bricks).**
   (i) 300 mm × 250 mm × 40 mm- 2 nos.
   (ii) Circular plates of 250 mm dia - 4 nos.

A) Field Testing Instruments:

(1) Steel tapes – 3 m.
(2) Vernier Calipers.
(3) Micrometer screw 25 mm gauge.
(4) A good quality plumb bob.
(5) Spirit level, minimum 30 cms long with 3 bubbles for horizontal vertical.
(6) Wire gauge (circular type) disc.
(7) Foot rule.
(8) Long nylon thread .
(9) Rebound hammer for testing concrete
(10) Dynamic penetrometer.
(11) Magnifying glass
(12) Screw driver 30 cms long
(13) Ball pin hammer, 100 gms.
(14) Plastic bags for taking samples
(15) Moisture meter for timber
(16) Earth resistance tests (for Electrical Divisions)
(17) Meggar (for Electrical Divisions)
(18) Total station
(19) Ultrasonic testing equipments (For Concrete)
(20) Digital PH metre least count 0.01
(21) Digital paint thickness meter for steel 500 microns range.
(22) Any other equipment for site test as outlined in BIS code or as directed by Engineer-in-Charge

Clause10B(ii)

Whether clause 10B (ii) shall be applicable **No**

Clause10C

Component of labour expressed as Percent of value of work **25%**

खण्ड Clause10CA

Material covered under this clause	Nearest materials (Other than cement, reinforcement bars and structural steel) for which All India Whole Sale Price Index is to be followed.	Base Price and its coresponding period ofall the materials covered under clause 10 CA * (September-2018), the rates are excluding the GST.
1. Cement (PPC)	NA	~~Rs. 3563/- per MT~~
2 .Steel reinforcement	NA	~~Rs. 41650/- per MT~~
3 .Structural steel	NA	~~Rs. 40870/- per MT~~

Clause10CC

Clause 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column : 12 Months

Schedule of components of other materials, Labour etc. for price escalation.
Components of civil (except materials Covered under clause 10 CA) / Electrical Construction value of work- Xm : 40%

Component of labour-
Expressed as percentage of total value of work- Y : 25%

Clause 11

Specifications to be followed for execution of work — **For Civil : CPWD specification 2009, Volume-I & II with correction slips uptolast date of receipt of tender.**

Clause 12

	Type of Work	**Original Work**
12.2 & 12.3	Deviation limit beyond which clauses 12.2 & 12.3 shall apply for building work (Other than foundation)	**30%**
12.5 12.6	(i) Deviation limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work suheadin DSR and related items)	**30%**
	(ii) Deviation limit for items in earth work subhead of DSR and related items	**100%**

Clause 16

Competent Authority for reduced rates — For Civil Work : Director / Superintending Engineer, AIIMS , Raipur

Clause 18

List of mandatory machines, tools and plants to be deployed by the contractor at site.

As required by Engineer-In-Charge

Clause 36(i)
"Requirement of Technical Representative(s) and Recovery Rate

SNo	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical / Technical representative)	Minimum experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 36(i)	
						Figures	Words
1	Graduate Engineer	Civil	Principal Technical Representative	2 - years	ONE	Rs. 15,000/- PM	Rupees Fifteen Thousand Per Month each
OR	Diploma Engineer	CIVIL	(Project Planning/ Site/ billing Engineer)	5-years	ONE	Rs.15000/- PM.	Rupees Fifteen Thousand Per Month each

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

Clause 42

I)	I) (a)Schedule/statement for determining theoretical quantity of cement & bitumen	On the basis of Delhi Schedule of Rates 2016 2016 printed by C.P.W.D. with correction slips issued up to date of receipt of tender.
II)	Variations permissible on theoretical quantities.	
a)	Cement for works with estimated cost put to tender not more than Rs. 5 lakhs	Not Applicable
	for works with estimated cost put to tender more than Rs. 5 lakhs	2 % plus/minus.
b)	Bitumen for all works	2.5% plus only & Nil on minus side
c)	Steel Reinforcement and structural steel sections for each diameter, section and category.	2% plus/minus
d)	All other materials	Nil.

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl No.	Description of item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	Less use beyond the permissible variation
1.	Cement	N.A.	**Rs. ~~3919/- per MT~~**
2.	Steel Reinforcement	N.A.	**Rs. ~~45815/- per MT~~**

ANNEXURE – 'A'

FORM OF EARNEST MONEY DEPOSIT (BANK GUARANTEE BOND)

WHEREAS, contractor ..... (Name of contractor) (hereinafter called "the contractor") has submitted his tender dated ..... (date) for the construction of (name of work) (hereinafter called "the Tender")

KNOW ALL PEOPLE by these presents that we ..... (name of bank) having our registered office at ..... (hereinafter called "the Bank") are bound unto ..... (Name and division of Executive Engineer) (hereinafter called "the Engineer-in-Charge") in the sum of Rs. ..... (Rs. in words .....) for which payment well and truly to be made to the said Engineer-in-Charge the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this ..... day of ..... 20... .

THE CONDITIONS of this obligation are:

(1) If after tender opening the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;

(2) If the contractor having been notified of the acceptance of his tender by the Engineer-in-Charge:
   (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required; OR
   (b) fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor.

We undertake to pay to the Engineer-in-Charge either up to the above amount or part thereof upon receipt of first written demand, without the Engineer-in-Charge having to substantiate his demand, provided that in his demand the Engineer-in-Charge will note that the amount claimed by him is due to him owing to the occurrence of one or any of the above conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date.* after the deadline for submission of tender as such deadline is stated in the Instructions to contractor or as it may be extended by the Engineer-in-Charge, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE SIGNATURE OF THE BANK

WITNESS SEAL

(SIGNATURE, NAME AND ADDRESS)

*Date to be worked out on the basis of validity period of (90 days) or more from last date of receipt of tender.

Annexure-XVIII
(Form 31)
INDENTURE FOR SECURED ADVANCES
(Referred to in paragraphs 10.2.20 and 10.2.22 of CPW A Code)

(For use in cases in which the contract is for finished work and the contractor has entered into an agreement for the execution of certain specified quantity of work in a given time.)

THIS INDENTURE made the..... Day of .....20..... BETWEEN..... (hereinafter called the Contractor which expression shall where the context so admits or implies be deemed to include his executors, administrators and assigns) of the one part and the PRESIDENT OF INDIA (hereinafter called the President which expression shall where the context so admits or implies be deemed to include his successors in office and assigns) of the other part.

WHEREAS by an agreement dated.....(hereinafter called the said agreement) the Contractor has agree AND WHEREAS the Contractors has applied to the President that he may be allowed advance on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rate fixed for the finished work (inclusive of the cost of material and labor and other charges) AND WHEREAS the President has agreed to advance to the Contractor the sum of Rupees..... on the security of material the quantities and other particulars of which are detailed in Accounts of Secured Advances attached to the Running Account Bill for the said works signed by the Contractor on..... and the President has reserved to himself the option of making any further advance or advances on the security of other materials brought by the Contractor to the site of the said works. Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupees..... on or before the execution of these presents paid to the Contractor by the President (the receipt whereof the Contractor doth hereby acknowledge) and of such further advances (if any) as may be made to him as aforesaid the Contractor doth hereby covenant and agree with the President and declare as follows:-

(1) That the said sum of Rupees.....so advanced by the President to the Contractor as aforesaid and all or any further sum or sums advanced as aforesaid shall be employed by the Contractor in or towards expediting the execution of the said works and for no other purpose whatsoever.

(2) That the material detailed in the said Account of Secured Advances which have been offered to and accepted by the President as security are absolutely the Contractor's own property and free from encumbrances of any kind and the Contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor indemnifies the President against all claims to any materials in respect of which an advance has been made to him as aforesaid.

(3) That the materials detailed in the said Account of Secured Advances and all other materials on the Security of which any further advance or advances may hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Divisional Officer.....Division (hereinafter called the Divisional Officer) and in the term of the said agreement.

(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in

the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Divisional Officer or any Officer authorized by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same as required by the Divisional Officer.

(5) That the said materials shall not on any account be removed from the site of the said works except with the written permission of the Division Officer or an officer authorized by him on that behalf.

(6) That the advances shall be repayable in full when or before the Contractor receives payment from the President of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediated payments are made to the Contractor on account of work done than on the occasion of each such payment the President will be at liberty to make a recovery from the Contractors bill for such payment by deducting there from the value of the said materials then actually used in the Construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amount of the advances made under these presents were calculated.

(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing to the President shall immediately on the happening of such default be repayable by the Contractor to the President together with interest thereon at twelve per cent per annum from the date or respective dates of such advance of advances to the date of repayment and with all costs charges, damages and expenses incurred by the President in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the President to repay and pay the same respectively to him accordingly.

(8) That the Contractor hereby charges all the said materials with the repayment to the President of the said sum of Rupees.....and any further sum or sums advanced as aforesaid and all costs charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and whenever the covenant for payment and repayment herein before contained shall become enforceable and the money owning shall not be paid in accordance therewith the President may at any time thereafter adopt all or any of the following courses as he may deem best:-

(a) Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provisions in the behalf contained in the said agreement debiting the Contractor with the actual cost of effecting such completion and the amount due in respect of advances under these presents and crediting the Contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the Contractor he is to pay same to the President on demand.

(b) Remove and sell by public auction the sized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the President under these presents and pay over the surplus (if any) to the Contractor.

(c) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

(9) That except in the event of such default on the part of the Contractor as aforesaid interest on the said advance shall not be payable.

(10) That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these present shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been herein before expressly provided for the same shall be finally resolved **as per provisions of clause 25 of the contract.**

In witness whereof the said .....and.....by the order and under the direction of the President have hereunto set their respective hands the day and year first above written.

Signed, sealed and delivered by.....the said contractor in the presence of

Signature .....
Witness Name .....
.....
Address .....
Signed by .....
By the order and direction of the President in the presence of

Signature .....
Witness Name .....
.....
Address .....

APPENDIX – XVII (Refer Clause 5)

FORM OF APPLICATION BY THE CONTRACTOR FOR SEEKING EXTENSION OF TIME

1. **Name of contractor:**
2. **Name of work as given in the agreement:**
3. **Agreement no:**
4. **Estimated amount put tender:**
5. **Date of commencement of work as per agreement:**
6. **Period allowed for completion of work as per agreement:**
7. **Date of completion stipulated in agreement:**
8. **Period for which extension of time if has been given by authority in Schedule 'F' previously:**

	Letter no. and date	Extension granted	
		Months	Days
(a) 1st extension			
(b) 2nd extension			
(c) 3rd extension			
(d) 4th extension			
(e)Total extension previously given			

9. Reasons for which extension have been previously given (copies of the previous applications should be attached)
10. Period for which extension is applied for
11. Hindrances on account of which extension is applied for with dates on which hindrances occurred and the period for which these are likely to last (for causes under clause 5.2/ and 5.3).

Submitted to the Authority indicated in Schedule F with copy to the Engineer-in-charge and Sub Divisional Officer.

Signature of Contractor
Dated

PARTICULAR SPECIFICATIONS
&
SPECIAL CONDITIONS

1. GENERAL

1.1 Wherever any reference to any Indian Standard Specifications of BIS or other International standards of ASTM / BS/EN occurs in the documents relating to this contract, the same shall be inclusive of all amendments issued there-to or revisions thereof, if any, up to the date of receipt of tenders.

1.2 The contractor shall work according to the programme of work as approved by the Engineer-in-charge, for which purpose, the contractor shall submit a programme of the work within 15 days from the stipulated date of start of the work based on computer software such as MS Project or Prima Vera and shall update the same every fortnight.
The contractor shall submit monthly progress report of the work in a computerized form. The progress report shall contain the following, apart from whatever else may be required as specified:

(i) Project information, giving the broad features of the contract of the work under the contract, and the broad structural or other details.

(ii) Introduction, giving a brief scope of the work under the contract, and the broad structural or other details.

(iii) Construction schedule of the various components of the work through a bar chart for the next three quarters (or as may be specified), showing the milestones, targeted tasks and upto date progress.

(iv) Progress chart of the various components of the work that are planned and achieved, for the month as well as cumulative upto the month, with reasons for deviations, if any, in a tabular format.

(v) Plant and machinery statement, indicating those deployed in the work, and their working status.

(vi) Man-power statement, indicating individually the names of all the staff deployed in the work, along with their designations.

(vii) Financial statement, indicating the broad details of all the running account payments received upto date, such as gross value of work done, advances taken, recoveries effected, amounts withheld, net payments, details of cheque payments received, etc.

(viii) A statement showing the extra and substituted items submitted by the contractor, and the payments received against them, items pending for sanction/decision by the Department, broad details of the Bank Guarantees, indicating clearly their validity periods, broad details of the insurance policies taken by the contractor, if any, the advances received and adjusted.

(ix) Progress photographs, in colour, of the various items/components of the work done upto date, to indicate visually the actual progress of the work.

(x) Quality assurance and quality control tests conducted during the month, with the results thereof.

(xi) Videography at various stages of construction right from the day of start of work to date of completion/occupation, covering all major events, inspections, visits by dignitaries etc.

1.3 The contractor shall take instructions from the Engineer-in-charge for stacking of materials at site. No excavated earth or building materials shall be stacked on areas where the buildings, roads, services or compound walls are to be constructed.

1.4 If as per Municipal or prevailing rules of the secured campuses owned by AIIMS Institutions etc, the huts for labour are not to be erected at the site of work by the contractors, the contractors shall provide such accommodation at such locations as are acceptable to local bodies with all provisions concerning labour safety & sanitation as contained in the relevant clause of the contract, for which nothing shall be payable.

1.5 Unless otherwise provided in the Schedule of quantities, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the building and nothing shall be payable to him on this account.

1.6 The working drawings appearing in conditions of contract, (if any) in the form CPWD-7/8, shall mean to include both architectural and structural drawings respectively. The structural and architectural drawings shall be properly correlated before executing the work. In case of any difference noticed between architectural and structural drawings, final decision, in writing of the Engineer-in-charge shall be obtained by the contractor before proceeding further.

1.7 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 restriction/instructions including issue of identity cards to all persons authorized by him to do work /visit the work site and nothing shall be payable on this account.

1.8 The contractor shall make his own arrangements for obtaining electric connections, if required, and make necessary payments directly to the department concerned, if department agree for this.

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

1.10 Cast iron pipes and fittings without ear shall be used. However, pipes and fittings with ears may be accepted without any extra payment. In such cases, clamps are not required and no extra payment shall be made for fixing the pipes in a different manner.

1.11 Any cement slurry added over base surface for bond or for continuation of concreting, for protecting reinforcement bars, its cost shall be deemed to have been included in the respective items, unless specified otherwise and nothing extra shall be payable nor extra cement shall be considered in the cement consumption on this account.

1.12 Stacking of materials and excavated earth including its disposal shall be done as per the directions of the Engineer-in-Charge. Double handling of materials or excavated earth if required at any stage shall have to be done by the contractor at his own cost.

1.13 No claim for idle establishment & labour, machinery & equipments, tools & plants and the like, for any reason whatsoever, shall be admissible during the execution of work as well as after its completion.

1.14 Only Star headed Stainless Steel screws shall be used unless otherwise specified.

1.15 Work shall be carried out in professional manner with finished product serving the intended purpose with specified strength, durability and aesthetics.

1.16 Work activities shall be executed in well thought out sequences such that consequent activities not adversely affecting previously done work. Nothing extra shall be payable to protect the works already done.

1.17 The contractor shall prepare all the needed shop drawings well in advance and get them approved before placing the order and execution of the item.

1.18 The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer - in -Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications.

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

1.20 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.

1.21. The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot / area using CGI sheets or plastic and / or other similar material to ensure that no construction material dust fly outside the plot area.

1.22 The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes / or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precautions that the vehicles are properly cleaned and dust free to ensure that enroute their destination, the dust, sand or any other particles are not released in air / contaminate air.

1.23 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.

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

1.25 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.

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

1.27 The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.

1.28 The contractor shall carry out on-Road-Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.

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

1.30 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.

1.31 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.

1.32 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.

1.33 Every waste generator shall segregate construction and demolition waste and deposit at colletion centre or handover it to the authorised processing facilities.

1.34 Shall ensure that there is no littering or deposition so as to prevent obstruction to the traffic or the public or drains.

1.35 Large generators (who generate more than 20 tons or more in one day or 300 tons per project in a month) shall submit waste management plan and gel appropriate approvals from the local authority before starting construction or demolition or remodelling work.

1.36 Large generators shall have environment management plan to address the likely environment issues from construciton, demolition, storage, transportation process and disposal/reuse of C & D waste.

1.37 Large generators shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar.

1.38 Large generators shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities.

1.39 The agency has to comply "Contractor & Demolition Waste Management Rules, 2016" and nothing extra will be payable.

1.40 All the registers of test carried out at construction site or in outside laboratories and all Materials at Site (MAS) Registers including cement register shall be maintained by contractor which shall be issued to the contractor by Engineer in Charge. All the entries in the register shall be made by the designated Engineer in staff of the contractor and same should be regularly reviewed by JE/AE/ EE. Contractor shall be responsible for safe custody of all the registers.

2.0 FLOORING, SKIRTING, VENEERING, DADO, TREADS & RISERS OF STEPS, JAMBS, SILLS & SOFFITS

2.1 Nothing extra shall be payable for using combination of marble, granite and kota in the required pattern at various locations unless otherwise specified.

2.2 Flooring in toilets, verandah, kitchen, courtyard and at other places if required shall be laid to the required slope/gradient as per the directions of the Engineer-in-Charge and nothing extra shall be paid on account of the same.

2.3 The pattern, spacing and locations of joints shall be as per drawings and direction of the Engineer-in-Charge and nothing extra shall be paid on account of the same.

3.0 SPECIALISED ITEMS

3.1 **LIST OF SPECIALISED ITEMS:**

1. Water proofing treatment work
2. Laying of granite stone flooring
3. Special foundations including all types of piles.
4. Acoustic treatment and other decorative items such as glass ceiling.
5. Aluminum doors and windows, aluminum partition.
6. Underground & overhead RCC tank.
7. Guniting, Ready mix concrete.
8. Aluminum composite panel.
9. Fabrication and erection of space frame including covering with lightweight poly carbonate roofing.
10. Diaphram walls.
11. Anti-termite chemical treatment.
12. Stainless steel cladding and stainless steel railing.
13. Structural glazing work,
14. Fiber glass doors.
15. Stone works such as:
    (a) Ashlar stone masonry work.
    (b) Stone jali work.
    (c) Italian marble work.
16. Superior water supply fittings such as Jacuzzi steam cabins, cascades, etc.
17. Sensor operated system for flushing.
18. Plumbing with copper/polypropylene pipes using advanced technology for jointing.
19. Textured finishing work.
20. Signages
21. Post Tensioning Beams and Slabs
22. Bamboo Wood Flooring
23. Acoustic Doors
24. GRG False Ceiling

3.2 **Procedure for Execution of the Specialized Items:**

Such items should be got executed only through associated agencies specialized in these fields. The contractor shall indicate the name(s) of his associated specialized agencies those fulfilling the conditions described in para 16.5 of CPWD Works Manual-2014 as early as possible and within one month of award of work to Engineer-in-Charge for approval of competent authority.

3.3 **Specialized Agencies**

3.3.1 Specialized Agencies for items in case of Civil works shall be approved by the competent authority. The contractors shall quote the rates after careful study of contract conditions, specifications, drawings & schedule of quantities.

3.3.2 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.

3.3.3 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 competent authority.

3.3.4 Condition for Horticulture/ Landscaping work :- Contractors who fulfill the following requirements shall be eligible to work.

"Should have satisfactorily completed the works as mentioned below during the last Seven years ending previous day of last date of submission of bids.

3.4 RATES

3.4.1 The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, setting lay out on ground, establishment of reference bench mark(s), installing various signage, taking spot levels, survey with total station, construction of all safety and protection devices, compulsory use of helmet and safety shoes, and other appropriate safety gadgets by workers, imparting continuous training for all the workers, barriers, preparatory works, construction of clean, hygienic and well ventilated workers housings in sufficient numbers as per drawing supplied by Engineer in charge, working during monsoon or odd season, working beyond normal hours, working at all depths, height, lead, lift, levels and location etc. and any other unforeseen but essential incidental works required to complete this work. Nothing extra shall be payable on this account and no extension of time for completion of work shall be granted on these accounts.

3.4.2 The rates quoted by the tenderer, shall be firm and inclusive of all taxes and levies (including GST).

3.4.3 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.

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

3.4.5 For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them.

3.4.6 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.

3.5 CLEANLINESS OF SITE

The Contractor shall not stack building material / malba / muck/ rubbish on the land or road of the local development authority or on the land owned by the others, as the case may be. So the muck, rubbish etc. shall be removed periodically as directed by the Engineer-in-Charge, from the site of work to the approved dumping grounds as per the local byelaws and regulations of the concerned authorities and all necessary permissions in this regard from the local bodies shall be obtained by the Contractor. Nothing extra shall be payable on this account. In case, the Contractor is found stacking the building material / malba as stated above, the Contractor shall be liable to pay the stacking charges / penalty as may be levied by the local body or any other authority and also to face penal action as per the rules, regulations and bye-laws of such body or authority. The Engineer –in-Charge shall be at liberty to recover, such sums due but not paid to the concerned authorities on the above counts, from any sums due to the Contractor including amount of the Security Deposit and performance guarantee in respect of this contract agreement.

3.6 INSPECTION OF WORK

In addition to the provisions of relevant clauses of the contract, the work shall also be open to inspection by the other senior officers of AIIMS, Raipur in addition of the Engineer-in-Charge and his authorized representative. The contractor shall at times during the usual working hours and at all times at which reasonable notices of the intention of the Engineer-in-Charge or other officers as stated above to visit the works shall have been given to the Contractor, either himself be present to receive the orders and instructions or have a responsible Site Engineer duly accredited in writing, to be present for that purpose Senior Officers of AIIMS Authorities shall be inspecting the

on-going work at site at any time with or without prior intimation.

3.7 GUARANTEE FOR WATER PROOFING TREATMENT:

The contractor shall give Ten years performance guarantee in the prescribed proforma (Annexure-I) for the water proofing treatment. In addition 10% (Ten percent) of the cost of water proofing items shall be retained as security, to watch the performance of the work executed. However, half of this amount (withheld) shall be released after Ten years, after the completion of the work, if no defect comes to notice. If any defect is noticed during the guarantee period, it shall be rectified by the contractor within Seven days after serving the notice by Department and, if not attended to, the same shall be got done through other agency at the risk and cost of the contractor. In any case the guaranteeing firms during the guarantee period shall inspect and examine the treatment once every year and make good any defect observed and Certificate to that effect shall be submitted to Department every year. However, the 10 % security deposit referred above can be replaced with bank guarantee of equivalent amount for relevant period.

4.0 Stainless Steel Railing/Handrails:

4.1 GENERAL

The contractor shall apply all materials, labour, tools, ladders, scaffolding and other equipments necessary for the completion and protection of all stainless steel work.

4.2 MATERIAL

All stainless steel pipes and plates shall conform to AISI 304 in 18/8 composition. 18 will be chromium and 8 will be Nickel and carbon content will be 0.03 maximum and the relevant clauses associated with this grade of steel to be followed.

4.3 SURFACE FINISH

Surface finish of all the stainless steel materials will be in 240 grit satin finish / matt finish.

4.4 ACCESSORIES

Fixing will be done by stainless steel expansion bolts of approved size and make as per Engineer-in-charge and welding to be done by using organ welding rods and the surface being duly finished and cleaned by K2 passivation, which is nitric acid plus floric acid solution treatment by which the chances of corrosion will be eliminated and any burn out makes on the metal will also be eliminated.

4.5 COATING MASS

All stainless steel material will have to be coated by a solution of Inox to avoid finger in prints and avoidance of settlement of environment / atmospheric dust.

4.6 MEASUREMENT

All the stainless steel finished parts shall be weighed correct to a gram and paid on weight basis.

4.7 RATE

The rate shall include the cost of all the materials, machinery and labour involved in all the operations described above including cartage, lifts and all taxes like Goods & Service Tax (GST) etc. as applicable.

Any incidental additional requirements for execution of this item to the satisfaction of Engineer-in-Charge shall also be treated as included in the item and shown in attached drawing and nothing extra will be paid for such extra work. Installation drawings for

approval of the Engineer-in-charge-in-Charge and no work shall be performed until the approval of these drawings is obtained.

4.8 CO-OPERATION WITH OTHER CONTRACTORS/SPECIALIZED AGENCIES / SUB-CONTRACTORS

4.8.1 The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general .The Contractor shall take all care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Engineer-in-Charge. The Contractor shall use such methodology and equipments for execution of the work, so as to cause minimum environmental pollution of any kind during construction. Further, the Contractor shall take all precautions to abide by the environmental related restrictions imposed by Chhattisgarh Environment Conservation Board, Raipur (C.G.)

Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings. No claim what so ever on account of site constraints mentioned above or any other site constraints, inadequate availability of skilled, semi-skilled or unskilled workers in the near vicinity, non-availability of construction machinery spare parts and any other constraints not specifically stated here, shall be entertained from the Contractor. Therefore, the Tenderers are advised to visit site and get first-hand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.

4.8.2 The Contractor shall cooperate with and provide the facilities to the sub-Contractors and other agencies working at site for smooth execution of the work. The contractor shall indemnify the **AIIMS Raipur.**

4.8.3 Against any claim(s) arising out of such disputes. The Contractor shall:

(i) Allow use of scaffolding, toilets, sheds etc.
(ii) Properly co-ordinate their work with the work of other Contractors.
(iii) Provide control lines and benchmarks to his Sub-Contractors and the other Contractors.
(iv) Provide electricity and water at mutually agreed rates.
(v) Provide hoist and crane facilities for lifting material at mutually agreed rates.
(vi) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
(vii) Adjust work schedule and site activities in consultation with the Engineer-in-Charge and other Contractors to suit the overall schedule completion.
(viii) Resolve the disputes with other Contractors/ sub-contractors amicably and the Engineer-in-Charge shall not be made intermediary or arbitrator.

4.8.4 The work should be planned in a systematic manner so as to ensure proper co-ordination of various disciplines viz. sanitary & water supply, drainage, rain water harvesting, electrical, fire fighting, information technology, communication & electronics and any other services.

4.8.5 Other 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 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 and

brick work, if required, and nothing extra shall be payable on this account.

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

5.0 CONSUMPTION OF PIG LEAD AND IT'S VARIATION FOR SCI SANITARY PIPES AND FITTINGS AS PER IS:3989

In order to ensure that adequate lead is poured properly into the joints and to control waste in use of lead for caulking of joints of SCI pipes and fittings, at the beginning of the work three or four sample joints shall be made and the quantum of lead per joint approved by the Engineer in charge. The actual consumption of lead should be within variation of 5% of the approved sample job. This variation includes allowances of wastage also. If the actual consumption of pig lead is less than the required consumption worked out on the above basis, the recovery on account of less use of lead shall be made from the contractor at market rate to be determined by the Engineer-in-charge, whose decision in the matter shall be final & binding.

6.0 FIXING OF SCI/CI PIPE

The SCI/CI pipes and G.I. pipes, wherever necessary, shall be fixed to RCC columns, beams etc. with rawl plugs, or appropriate fasteners as approved by Engineer-in-Charge, and nothing extra shall be payable on this account. GI pipes shall be wherever made to pass through wall / concrete then it shall be done using protective sleeves alround the pipes to protect it from damage, nothing extra shall be payable on this account.

7.0 CONDITION FOR CEMENT :-

7.1 The Contractor shall procure 43 grade Ordinary Portland cement (conforming to IS : 8112) or Portland slag cement (conforming to IS : 455) or Portland Pozzolana Cement (PPC) (Fly ash based) – conforming to IS : 1489 (Part-I) as required in the work, from reputed manufactures of cement such as ACC, Ultratech, Ambuja, Jaypee Cement & J.K. Cement or from any other reputed cement Manufacturer having a production capacity not less than one million tonnes per annum as approved by ADG for that sub region.

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 manufacture(s) which the contractor 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 manufacturer, given by the tenderer, fully or partially.

Supply of cement shall be taken in 50 Kg bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-charge and got issue in accordance with provisions of relevant BIS codes. In case test results indicate that the cement arranged by the Contractor does not conform to the relevant BIS codes, the same shall stand rejected and shall be removed from the site by the Contractor at his own cost within a week's time of written order from the Engineer-in-charge to do so.

If Portland Pozzolana cement or Portland slag cement is used, suitable modification in de-shuttering time etc. shall be done if need be as per specifications and standards and as directed by Engineer – in – charge and nothing extra shall be payable on this account.

No extra payment / deduction shall be made from the payment to the contractor for using any of the above type of cement.

7.2 The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer - in - charge.

7.3 For each grade / type, cement bags shall be stored in two separate godowns, one for tested cement and the other for fresh cement (under testing) constructed by the contractor at site of work as per sketch shown in General conditions of contract for CPWD works 2014 with weather proof roofs and walls, for which no extra payment shall be made. The size of the cement godown is indicated in the sketch for guidance only. The actual size of godown shall be as per site requirements and as per the direction of the Engineer in charge and nothing extra shall be paid for the same. The decision of the Engineer-in-charge regarding the capacity required/needed will be final. However, the capacity of each godown shall not be less than 100 tonnes. Each godown shall be provided with a single door with two locks. The keys of one lock shall remain with **AIIMS** Engineer-in-charge or his authorized representative and that of other lock with the contractor at the site of work so that the cement is issued from godown according to the daily requirement with the knowledge of both the parties. The account of daily receipt and issue of cement shall be maintained in a register in the prescribed Proforma and signed daily by the contractor or his authorized agent in token of its correctness.

7.4 The cement shall be got tested by 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 testing laboratories. The cost of tests shall be borne by the contractor / Department in the manner indicated below :-

(a) By the contractor, if the results show that the cement does not conform to relevant BIS codes.

(b) By the Department, if the results show that the cement conforms to relevant BIS codes.

7.4.1 All other charges of sampling, packing and transportation of sample shall also be borne by the Contractor.

7.5 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained separately for each type of cement, as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause 42 of the contract and shall be governed by conditions laid therein. However, for consumption lesser beyond permissible theoretical variation recovery shall be made in accordance with conditions of contract at Schedule A to F (CPWD-7), without prejudice to action for acceptance of work/item at reduced rate or rejection as the case may be. In case of excess consumption no adjustment shall be made.

7.6 Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer-in-charge.

8.0 CONDITIONS FOR REINFORCEMENT STEEL :-

8.1 a. The CPWD/contractor shall procure IS marked TMT bars of various grades from

(1) The Steel manufactures such as SAIL, TATA steel Ltd., RINL, Jindal Steel & Power Ltd. and JSW steel Ltd. or their authorized dealers having valid BIS license for IS:1786-2008 (Amendment -1 November 2012)

(2) (a) The Steel manufactures or their authorized dealers (as per following section criteria) having valid BIS license for IS:1786-2008 (Amendment -1 November 2012)

The procured steel should have following qualities :-

i. Excellent ductility, bend ability and elongation of finished product due to possible refining techology.
ii. Consumption of steel should be accurate as per design.
iii. Steel should have no brittleness problem in finished product.
iv. Steel should carry the quality of corrosion and earthquake resistance.
v. Quality steel with achievement of proper level of sulphur and phosphorus as per IS:1786-2008.

b. Selection Criteria of steel manufacturers

(I) The supply of reinforcement steel for all AIIMS works should have following selection criteria of steel manufacturers:-

Steel producers of any capacity using iron ore/processed iron ore as the basic raw material adopting advanced refining technologies as given under,

i. DRI-EAF = Direct Reduced iron-Electric arc furnace.
or
ii. BF-BOF = Blast furnace-Basic oxygen furnace.
or
iii. COREX-BOF = COREX - Basic oxygen furnace.

For production of liquid steel to finish product at single/multiple locations with NABL or any other similarly placed accrediting Government body which operates in accordance with ISO/IEC17011 and accredits labs as per ISO/IEC 17025 conforming to IS:1786-2008 (Amendment -1 November 2012). The check list for incorporation of any quality steel producer is enclosed for technical assesment is given in Annexure-1 of A para 27.2 for special condition of steel.

Engineer-In-Charge shall approve the steel manufactures.

(II) 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.

(III) 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 of written orders from the Engineer-in-Charge to do so.

(IV) The steel reinforcement bars shall be brought at site in bulk supply of 10 tonnes or more or as decided by the Engineer in charge.

(V) The steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent distortion and corrosion and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

(VI) For checking nominal mass, tensile strength, bend test, re-bend test, etc. specimen of sufficient length shall be cut from each size of the bar at random at frequency not less than that specified below:

Size of bar	For consignment below 100tones	For consignment above 100tones
Under 10 mm dia bars	One sample for each 25 tonnes or part there of	One sample for each 40tonnes or part there of
10 mm to	One sample for each 35 tonnes	One sample for each 45tonnes or

16mm dia bars	or part there of	part there of
Over 16mm dia bars	One sample for each 45 tonnes or part there of	One sample for each 50tonnes or part there of

(VII) 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.

(VIII) The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in clause 42 of the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variations, recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment need to be made.

(IX) The Steel brought to site and remaining unused shall not be removed from site without the written permission of Engineer-in-Charge.

8.9(i) Reinforcement including authorized spacer bars and lappages shall be measured in length for different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimeter. Wastage and unauthorized overlaps shall not be measured.

(ii) The standard sectional weights referred to shall be as in Table 5.4 in para 5.3.4 in revised CPWD specifications 2009 Vol. I will be considered for conversion of length of various sizes of TMT bars in to standard weight.

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

(a) If the derived weight as in sub-para (iii) above is less than the standard weight as in sub-para (ii) above, then the Derived Actual Weight shall be taken for payment.

(b) If the derived actual weight is found more than the standard weight, than standard weight as worked out in sub para (ii) above shall be taken for payment. Nothing shall be paid extra for the difference in Derived/ Actual Weight and standard weight.

8.10 Every care should be taken to avoid mixing different types of grades of bars in the same structural members as main reinforcement to satisfy relevant clause of IS: 456. In case of buildings, wherever the situation necessitates, the change over shall be permitted only from any one level onwards. In case of foundations, all foundation elements (footings and grade beams) shall have the same kind of steel. In the case of columns, all structural elements up to the level of change, where the change over is taking place should have the same kind of steel as those in columns.

8.11 The reinforcing steel brought to site of work shall be stored on brick / timber platform of 30/40-cm height, nothing extra shall be paid on this account.

Annexure-I
Special Condition for steel
(Reference para 27.2)

Sr. No.	Item	Checkpoint	Remarks
1	**Steel Producer having manufacturing facilities at plant**	a. Factory address and Registration No.	
		b. Certificate of manufacturing process	
		c. Refining process of steel Producer	
		c.1 BF- BOF route	
		c.2 Corex - BOF route	
		c. 3 DRI – EAF route	
		With documentary evidence either for BOF or EAF	
		d. Steel plant having infrastructure for producing sponge iron, billete and TMT Rebars	
		e. Production and Quality Flow Chart	
		f. Plant Evaluation and Process Verification	
		g. List of Plant & Machinery	
2	**Established**	**Document verification for:**	
		a. Govt. / PSU approvals	
		b. Supply orders of TMT Re-bars in Govt. Projects (Minimum-5 years)	
		c. Verification of direct supply orders to any State/Central Govt. Department d. User Certificate issued by any Govt. Department directly	
3	**Indigenous**	**Documentary evidence like;**	
		a. Certificate of Incorporation	
		b. Memorandum of Articles of Association	
		c. Credit rating of the company from CARE/CRISIL/ICRA should not be C/D grade (minimum last 3 year)	
4	**Reliable**	a. Test Results from Govt./NABL accredited laboratories	
		b. In-house testing facility for physical/Chemical tests (NABL accredited)	
		d. Calibration Certificates	
		e. List of Lab Equipments:	
		e.1 Spectrometer e.2 Computerized UTM	
5	**Use of iron-ore/Processes iron are as basic**	Verification of Iron-Ore/Process iron ore invoices	

	raw materials		
6	**In- house rolling facility**	Plant verification to identify in-house rolling facilities, production of liquid steel & crude steel	
6	**Licenses & Certificates**	a. ISO9001:2008 Certification b. ISO 14001:2004 Certification c. OHSAS 18001:2007 Certification d. IS 1786:2008 (TMT) Re-bars) e. IS 2830:1990 (Billets)	
6	**Product Range**	TMT Re-bars FE 415/415D/500/500D/550/550D	
		CRS (Corrosion Resistant) & EQR (Earthquake Resistant) TMT Re-Bars Size 8 to 36 mm dia.	

9.0 REINFORCED CEMENT CONCRETE WORK

9.1 DESIGN MIX CONCRETE

9.1.1 The RCC work shall be done with RMC Design Mix Concrete unless otherwise specified. In the nomenclature of items wherever letter M has been indicated, the same shall imply for the Design Mix Concrete. For the nominal mix in RCC, CPWD Specifications shall be followed. The Design Mix Concrete will be designed based on the principles given in IS: 456-2000. The contractor shall design mixes for each grade of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting requirements specified. In case of use of admixture and or white cement, the mix shall be designed with these ingredients as well.

9.1.2 The concrete mix design will be carried out by the contractor through one of the following laboratories / Test houses and ready mix concrete shall conform to accepted design mix. a) Govt. Engineering College, Bilaspur. b) Govt. Engineering College, Raipur. c) NIT Raipur

9.1.3 In the event of all the above laboratories being unable to carry out the requisite design / testing the contractor shall have to get the same done from any other laboratory with prior approval of the Engineer-in-Charge.

9.1.4 The contractor shall submit the mix design report from any of above approved laboratories for approval of Engineer-in-Charge within 45 days from the date of issue of letter of acceptance of the tender.

9.1.5 In case of white Portland cement and the likely use of admixtures where CC/RCC is done with concrete pumps in concrete with ordinary Portland/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.

9.1.6 Each time when there is change of source or characteristic properties of the ingredients used in the concrete mix during the work, a revised mix design shall be done and approval obtained from the approved Laboratory or as per the direction of the Engineer-in-Charge. Preferably only single source of cement shall be kept for the work. In case contractor decides to use more than one source of approved cement brand then for each brand separate design mix shall be done and got approved by Engineer-in-charge.

9.1.7 The Mix shall be designed to produce the grade of concrete having required workability and characteristic strength not less than as specified.

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

Where,

F_{ck} = Characteristic compressive strength at 28 days.

S= Standard deviation

The standard deviation for each grade of concrete shall be calculated separately.

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 follows:-

Grade of Concrete	For "Good" quality of control
M10	4.0
M 30	5.0
M 35	5.0
M 50	5.0

9.1.9 Out 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 likely to be attained at 28 days. All cost of mix designing and testing connected therewith including charges payable to laboratory shall be borne by the Contractor.

9.1.10 The samples of cement, aggregate (fine & coarse) to be sent to the laboratories shall be sealed in the presence of the Engineer- in -Charge and shall have his signature and cost of packaging, sealing, transportation, loading, unloading, cost of samples and the testing charges for Mix design in all cases shall be borne by the contractor.

9.1.11 Notwithstanding the approval granted by Engineer-in-Charge in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc.

9.1.12 The Engineer-in-Charge reserves the right to exercise control over the ingredients, water and admixtures, purchased, stored and to be used in the concrete including conducting of tests for checking quality of materials fit or unfit for use in production of mix.

9.1.13. The Contractor shall submit the test data of the material used for concrete mix-design in the laboratories, so the material being used at site can be compared with those data / size etc.

9.1.14 In case of change of parameters of ingredients (sand, cement, coarse aggregate) fresh concrete mix-design to be done as mentioned in paras 9.1.1, 9.1.2 & 9.1.6 to 9.1.10 above and got approved from the Engineer-in-Charge before execution.

9.1.15 The contractor shall make arrangement to install a mini laboratory at site for accelerated testing of design mix concrete as per IS : 9013. The department reserves right to take samples of design mix concrete from the mass production of the concrete for testing and compare with the laboratory's results.

9.1.16 Nothing shall be paid extra for installation and cost of batching plant and other arrangement for making necessary test of design mix concrete.

9.1.17 The item of design mix cement concrete shall be inclusive of all the ingredients including admixtures if required, labour, machinery T & P etc. (except shuttering which will be measured & paid for separately) required for a design mix concrete of required strength and workability. **The rate quoted by the agency shall be net & nothing extra shall be payable on account of change in quantities of concrete ingredients like aggregates and admixtures as per the approved mix design. Recovery @ Rs. 495/- per Quintal in the respective item shall be made for less use of cement in design mix than specified in the item.**

9.1.18 Concrete shall be handled from the place of mixing to the place of final deposit / placement by methods, which prevent segregation, or loss of any ingredients and contamination.

9.1.19 Where concrete is conveyed by chutes, the chute shall be made of metal or fitted with metal lining. The approval of the Engineer-in-charge shall be obtained for the use of chutes in excess of 3 metres length and in such cases the concrete shall be remixed if so required by the Engineer-in-Charge or closed bottom buckets shall be used. If concrete is placed by pumping, the conduit shall be primed properly. Once pumping is started, it shall not be interrupted as far as possible. Concrete shall not be dropped into place from a height more than 1.5m.

9.1.20 Concreting of any portion of the work shall be done in presence of the representative of the Engineer-in-Charge and shall be done only after approval of the Engineer-in-Charge.

9.1.21 Concreting shall be carried out continuously between constructions joints shown on the drawings or as agreed by the Engineer-in-Charge. The contractor shall closely follow the sequence of concreting where it is specified in the drawings. If concreting is interrupted before reaching the predetermined joint an approved construction joint shall be provided. Construction joints shall be minimized as far as possible. These shall be set at right angles to the general direction of the member. The surface film of the first placed concrete should preferably be removed while the concrete is still green to expose the aggregate and leave a sound irregular surface. However care shall be taken not to disturb the concrete already laid.

9.1.22 **Admixtures:** Wherever required, admixtures of approved quality only shall be mixed with concrete as specified. The admixtures shall conform to IS: 9103. The chloride content in the admixture shall satisfy the requirements of BS: 5075. The total amount of chlorides in the admixture mixed concrete shall also satisfy the requirements of IS 456-2000.

9.1.23 Use of ready mixed concrete (RMC) may also be permitted, with prior approval of Engineer –in – Charge, without any extra payment. Separate account of design mix concrete and RMC shall however be kept. The ready mixed concrete shall conform to the requirement of durability, workability and strength as laid down for design mix concrete.

9.2 Use of Fly Ash and Fly Ash Blended Cements in RCC Structures: -

9.2.1. General

9.2.1.1 IS : 456-2000 Code of Practice for plain and Reinforced Concrete (as amended up to date) shall be followed in regard to Concrete mix Proportion and its production as under :-

9.2.1.1.1 The concrete mix design shall be done as "Design Mix Concrete" as prescribed in clause – 9 of IS 456 mentioned above.

9.2.1.1.2 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.

9.2.1.2 Minimum M25 grade of concrete shall be used in all structural elements made with RCC both in load bearing and framed structure.

9.2.1.3 The mechanical properties such as modulus of elasticity, tensile strength, creep and shrinkage of flyash mixed concrete or concrete using flyash blended cements (PPCs) should not likely to be significantly different and their values are to be taken same as those used for concrete made with OPC. Fly ash when

used in the production of concrete shall be strictly in conformity with IS : 3812 (Para 1 & 10).

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

9.2.1.5 In environment subjected to aggressive chloride or sulphate attack in particular, use of flyash admixed or PPC based concrete is recommended. In cases, 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.

9.2.1.6 Wet curing period shall be enhanced to a minimum of 10 days or its equivalent. In hot and arid regions, the minimum curing period shall be 14 days or its equivalent.

9.2.2. Use of Flyash Admixed Cement Concrete (FACC) in RCC Structures: - There shall be no bar on use of FACC in RCC structures subject to following additional conditions :-

9.2.2.1 Flyash shall have its chemical characteristics and physical requirements etc. conforming to IS : 3812 (Part-10) and shall be duly certified.

9.2.2.2 To ensure uniform blending of flyash with cement in conformity with IS : 456, a specific facility needs to be created at site with complete computerized automated process control to achieve design quality or with similar facility from Ready Mix concrete (RMC) plants.

9.2.2.3 As per IS : 1489 (Part-I), Maximum 35% of OPC by mass is permitted to be substituted with flyash conforming to IS : 3812 (Part-I)and same is reiterated.

9.2.2.4 Separate storage for dry flyash shall be provided. Storage bins or silos shall be weather proof and permit a free flow and efficient discharge of flysh. The filter or dust control system provided in the bins or silos shall be of sufficient size to allow delivery of flyash maintained at specified pressure to prevent undue emission of flyash dust, which may interfere weighing accuracy.

9.2.3. Use of Fly Ash Blended Cements in Cement Concrete (PPCC) in RCC structures

9.2.3.1 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.

9.2.3.2 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.

9.2.3.3 While using PPC for structural concrete work, no further admixing of fly ash shall be permitted.

9.3 CONDITIONS FOR RCC WORKS READY MIX CONCRETE

1. Following parameters shall be adopted for mix design in a Moderate Exposure. (i). Nominal Maximum size of aggregate 20 mm angular as per C.P.W.D. specification (ii). Degree of quality control Good (iii). Type of Exposure Moderate (iv). Maximum water cement ratio 0.50 (v). Cement content a) 340 kg/cum of concrete for M-30 Grade b). 350 kg/cum of concrete for M-35 Grade c). 500 kg/cum of concrete for M-50 Grade (vi). Type of cement used. PPC conforming to IS:1489 Part-I (vii). Sand Coarse sand as per C.P.W.D. specifications. (viii). Chemical Admixure As per IS : 9103 .
2. Approved admixtures conformings to IS:9103 shall be permittd to be used. The chloride content in the admixture shall satisfy the requirement of BIS 5075. The total amount of chloride content in the admixture mixed concrete shall satisfy the requirement of IS:456-2000. Fly ash shall not be used in R.C.C.
3. The concrete mix design with and without admixture will be got carried out by the contractor through laboratories/ Test houses, approved by Engineer-in-charge.
4. The various ingredients of mix design/ laboratory tests shall be sent to the lab/ test houses through the Engineer-in-charge and the samples of such ingredients sent shall be preserved at site by the department till completion of work. The sample shall be taken from the approved materials which are proposed to be used in the work.
5. The contractor shall submit the mix design report from approved laboratory and get approval of Engineer-in-charge. No concreting shall be done without prior approval of the mix design by the Engineer-in-charge.
6. The contractor shall make cubes of trial mixes as per approved mix design at site laboratory for all grades of concrete in presence of the Engineer-in-charge using same ingredients as adopted to design mix, prior to commencement of concreting and get them tested in presence of Engineer-in-charge for 7 day and 28 days.
7. For each change of source/ quality/ characteristic properties of the ingredients from that approved & used in the concrete mix during the work, a fresh mix design shall be got done by the contractor from the approved laboratory. Revised trial mix test shall be conducted at laboratory established at site and shall be submitted by the contractor as per the direction of the Engineer-in-charge.
8. The cost of packaging, sealing, transportation, loading, unloading, cost of samples and the testing charges for mix design in all cases shall be borne by the contractor.
9. The rate for the item of Ready mix concrete shall be inclusive of all the ingredients including admixtures if required, labour, placing, curing, compacting, pumping, machinery, T&P etc. (except shuttering which will be measured & paid for separately) required for a design mix concrete of required strength and workability. The rate quoted by the agency shall be net and nothing extra shall be payable on account of change of quantities of concrete ingradients like aggregates and admixtures etc. as per the approved mix design. If cement used as per approved mix design is less than that as stipulated in the item i.e. 330 Kg/cum for M-25 and 340 Kg/cum for M-30 grade of RMC/DMC respectively then recovery for less use of cement than stipulated in the item shall be made @Rs. 4.95 per kg of cement and nothing extra shall be payable for use of cement more than 330 kg/cum or 340 Kg/cum of R.M.C./Design Mix Concrete of M-25 and M-30 grade respectively.
10. The contractor shall engage Ready Mix Concrete (RMC) producing plants to supply RMC for the work. The RMC plant proposed to be engaged by the contractor shall fulfill the following requirements: i) It shall be fully computerized ii) It should have supplied RMC for Government/ Public undertaking/ Local bodies projects of similar

magniture. iii) It should have facility for providing printed dispatch slips showing ingredients of concrete carried by each mixer.

11. The contractor shall within 15 days of award of the work, submit list of at least two RMC plant companies of repute along with details of such plants including details of transit mixer, pumps etc. to be deployed indicating name of owner company, its location, capacity, technical establishment, past experience and text of M.O.U. proposed to be entered between purchaser (the contractor) and supplier (R.M.C. plant) to the Engineer-in-charge who shall give approval in writing (subject to drawl of M.O.U.). The contractor shall draw M.O.U. with approved R.M.C. Plant owner and submit to Engineer-in-charge within a week of such approval. The contractor will not be allowed to purchase ready mix concrete without completion of above stated formalities for use in this project. Notwithstanding the approval granted by Engineer-in-charge in aforesaid manner, the Contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc. The Engineer-in-charge or his representative Engineer will reserve the right to inspect the plant at any stage and reject the concrete if he is not satisfied about quality of product. The contractor should thereofore, draw M.O.U./ agreement with R.M.C. owner/ company very carefully keeping all terms and conditions/ specifications forming a part of this tender document.
12. The Engineer-in-charge reserves the right to cancel the approval of plant with or without assigning any reason.
13. The Engineer-in-charge reserve the right to exercise control over the:-
    i. Ingredients, water and admixtures purchased, stored and to be used in the concrete including conducting of tests for checking quality of materials, recordings of test results and declaring the materials fit or unfit for use in production of mix.
    ii. Calibration check of the R.M.C.
    iii. Weight and quantity check on the ingredients, water and admixtures added in batch mixing.
    iv. Time of mixing of concrete.
    v. Testing of fresh concrete, recordings of results and declarig the mix fit or unfit for use. This will include continuous control on the workability during production and taking corrective action. For exercising such control, the Engineer-in-charge shall periodically depute his authorized representative at the RMC plant. It shall be responsibility of the contractor to ensure that all necessary equipment, manpower & facilities are made available to Engineer-in-charge/ his representative at R.M.C. plant.
14. Ingredients, admixtures & water declared unfit for use in production of mix shall not be used. A batch mix found unfit for use shall not be loaded into the truck for transportation.
15. All required relevant records of R.M.C. shall be made available to the Engineer-incharge or his authorized representative. Engineer-in-charge shall, as required, specify guidelines & additional procedures for quality control & other parameters in respect of materials & production and transportation of concrete mix which shall be binding on the contractor & the R.M.C. plant.
16. PPC (Conforming to IS:1489 Part-I) of brand/ make/ source as approved by Engineer-in-charge shall only be use for production of concrete.

17. **QUALITY CONTROL OF READY – MIXED CONCRETE** It shall be the responsibility of the contractor to ensure that the RMC producer provides all necessary

testing equipments and takes all necessary measures to ensure quality control of ready-mixed concrete. In general the required measures shall be :-

i. **CONTROL OF PURCHASED MATERIAL QUALITY R.M.C.** producer shall ensure that all the materials purchased and used in the production of concrete conform to the stipulation of the relevant agreed standards with the materials supplier and the requirements of the products, mix design and quality control prodedures. This shall be accomplished by visual checks, sampling and testing, certification from material supplier and information/ data for material supplier. Necessary equipment for the testing of all material shall be provided and maintained in calibrated condition at the plant by the R.M.C. producer.

ii. **CONTROL OF MATERIAL STORAGE** Adequate and effective storage arrangement shall be provided by RMC producer at RMC plant for prevention of contamination, reliable transfer and feed systems, drainage of aggregates, prevention of freezing or excessive solar heating of aggregate etc.

iii. **COMPUTER PRINT OUTS OF EACH TRUCK LOAD** Each truckload transit mixer dispatched to site shall carry computer printout of the engredients of the concrete it is carrying. The printout shall be produced to Engineer-in-charge or his representative at site before R.M.C. is used in work.

iv. **TRANSFER AND WEIGHING EQUIPMENT R.M.C.** producer shall ensure that a documented calibration is in place. Proper calibration records shall be made available indicating date of next calibration due, corrective action taken etc. RMC producer shall ensure additional calibration checks whenever required by Engineer-in-charge in writing to contractor. R.M.C. producer shall also maintain a daily production record including details of customers to whom R.M.C. was supplied including details of mixes supplied. Record shall also be maintained of what materials were used for the day's production including water and admixtures. The accuracy of measuring equipment shall be within +2% of quantity of cement, (-) 3% of quantity of aggregate, admixrure and water being measured.

v. **MAINTENANCE OF PLANT, TRUCK MIXERS AND PUMPS** Plant, Truck, Mixers and pumps should be well maintained so that it does not hamper any operation of production, transportation and placement.

vi. **PRODUCTION OF CONCRETE:-** The following precautions shall be taken during the production of RMC at the plant.

   i. Weighing (correct reading of batch data and accurate weighing):- For each load, written, printed or graphical records shall be made of the weights of the materials batched, the estimated slump, the total amount of water added to the load, the delivery tickets number for that load and the time of loading the concrete into the truck.

   ii. Visual observation of concrete during production and delivery or during sampling and testing of fresh concrete, assessment of uniformity, cohesion, workability, adjustment to water content:- The workability of the concrete shall be controlled on a continuous basis during production. The batch mix found unfit shall not be loaded into the truck for transportation. Necessary

corrective action shall be taken in the production of mix as required for further batches.

iii. Use of adequate equipment at the plant to measure surface moisture content of aggregates, particularly fine aggregate and the workability of the concrete, cube tests etc. shall also be ensured.

iv. Making corresponding adjustment at the plant automatically or manually to batched quantities to allow for observed, measured or reported changes in materials or concrete qualities.

v. Sampling of concrete, testing, monitoring of results.

vi. Diagnosis and correction of faults identified from observations/ complaints. The RMC plant produced concrete shall be accepted by Engineer-in-charge at site ater receipt of the same after fulfilling all the requirements of mix mentioned in the tender documents.

18. Ready mix concrete shall be arranged in quantity as required at site of work. The ready mix concrete shall be supplied as per the pre-agreed schedule approved by Engineer-in-charge.

19. If so required by the Engineer-in-charge, the RMC producer shall provide separate storage space/ godowns for storage of materials approved by Engineer-in-charge for the design mix concrete.

20. Frequency of sampling and standard of acceptance shall be as per CPWD Specifications for design mix concrete.

21. The RMC shall be placed by pump of suitable capacity and the contractor shall arrange sufficient length of pipe at site to place the RMC in the minimum required time. The contractors shall co-ordinate with R.M.C. supplier and pump hirer to have effective concrete placement. Nothing extra shall be paid for placing of concrete through concrete pump.

22. The respresentative of R.M.C. supplier shall attend the site meeting as and when decided by the Engineer-in-charge.

23.

i. The contractor shall assess the quantity of R.M.C. requirement at site well in advance and order accordingly to the R.M.C. supplier. In case excess R.M.C. is received at site, the department shall not be under any obligetaion to get the extra quantity utilized and no payment for such R.M.C. shall be made.

ii. The contractor shall have to employ labour in shifts to ensure continuous casting of slabs and other RCC members. No extra payment on this account shall be made.

24. The department will recommend to the Traffic Police to issue permits for the entry of the vehicles through the area of no entry zone to the working area. However, absence of such permits will not be cause for delay in completion of the work.

10.0 PARTICULAR SPECIFICATIONS FOR AAC BLOCK MASONRY:

10.1 The AAC Blocks shall be procured from approved manufacturers.

10.2 The blocks shall be stored at site in stacks on a level dry surface.

10.3 The mortar used for joining the blocks shall be mixed in the proportion 1:4 (1 Cement : 4 coarse sand) by volume.

10.4 The thickness of joints in the masonry shall not exceed 10 mm and shall be of uniform thickness.

10.5 Maximum height of wall built on any day shall not be more than 1.2 metres (i.e. 6 layers).

10.6 The joints in the masonry shall be recessed and no flush pointing shall be done.

10.7 A slip membrane with PVC sheet shall be introduced as per the recommendation of blocks manufacturer before laying the first course on the plinth beam.

10.8 The blocks shall not be soaked in water and instead they shall be dipped in water and taken out immediately to have only moist surface.

10.9 The vertical joints of the masonry shall be broken to have a minimum overlap of 100 mm.

10.10 Bed joint 2 Nos 6mm dia reinforcement bars may be placed in the joints after every 3rd course in two successive layers as per the recommendation of the manufacturers to have good lateral stability.

10.11 It shall be ensured that the lintels are rest at either end of window opening only on full block and not on half or part blocks reinforcement shall be placed in the sill course of window openings in two successive horizontal joints and extend the same at least to 600 mm on either side of the jamb surface.

10.12 At a RCC column interface an MS anchor ("L" shape) may be placed and fixed with screws at every 4th course so as to anchor the wall with RCC column for better lateral stability. The anchor shall be got approved from Engineer-in-Charge.

10.13 Curing of the masonry shall be done only by spraying water and no flooding shall be done by water jets / buckets.

10.14 The chases in the wall surface for electrical conduits shall be done only by means of electrically operated saw to cut two parallel lines and the portion between the cuts shall be chiseled carefully. The depth of vertical chases should be limited to 1/3 rd of wall thickness and horizontal chases should not be more than 1/6th of wall thickness. The chases have to be properly packed with cement mortar 1:4 (1 cement : 4 sand) between pipes and chases.

10.15 The blocks shall be cut using a carpenter saw to have half blocks or any other suitable size block to close the masonry course or to break the vertical joint from the bottom course. Hammer or a masons trowel shall not be used to cut the blocks.

10.16 GI wire mesh shall be fixed on all column wall and beams- wall junctions before taking up the plaster work.

10.17 The rates of the item include all the elements described above.

11.0 EQUIPMENTS AND PLANTS (Refer Clause 18 of Schedule 'F')

11.1 The contractor has to deploy necessary tools & plants in required numbers to ensure smooth & timely execution of work, at his own cost & risk as per the requirement of work at different stages. The decision of Engineer-in-Charge shall be final regarding use of particular T&P(s) at a particular time(s) & the contractor has to adhere to the same strictly. The description & quantum of T&P is given for general guidance which is not mandatory. However, the successful contractor shall give a list of tools and plants which he proposes to deploy to ensure smooth and timely execution as per different milestone

fixed and timely completion of work while submitting the programme and progress chart.

11.2 To achieve the program of work as per programme the contractor must bring at site the required shuttering materials required for cement concrete and RCC work etc. within 30 days from the date of start of work. All other equipments shall be brought, installed and commissioned at site of work at least one week before their actual planned use at site. Work shop facilities for fabrication/addition and alterations, and other allied works shall be arranged by the contractor at his own cost.

11.3 The list of equipment/T&P/machinery as per para 11.1 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 include equipment for arrangement of concrete from RMC producing plants also.

11.4 All the equipment, T&P and machinery shall be kept in good condition.

12.0 SAFETY MEASURES AT CONSTRUCTION SITE

In order to ensure safe construction, following shall be adhered for strict compliance at the site:-

(i) The work site shall be properly barricaded.

(ii) Adequate singnages indicating 'Work in Progress – Inconvenience caused is Regretted' or Diversion Signs shall be put on the sites conspicuously visible to the public even during night hours. These are extremely essential where works are carried out at public places in use by the public.

(iii) The construction malba at site shall be regularly removed on daily basis.

(iv) All field officials and the workers must be provided with safety helmets, safety shoes and safety belts.

(v) Proper MS pipe scaffoldings with work – platforms and easy-access ladders shall be provided at site to avoid accidents.

Necessary First-Aid kit shall be available at the site.

The above provisions shall be followed in addition to the provisions of General Condition of Contract.

13.0 LIST OF EQUIPMENT FOR SITE LABORATORY TO BE MADE AVAILABLE BY THE CONTRACTOR AT HIS OWN COST (Refer Clause 10 A of Schedule 'F')

Laboratory testing instruments.

(23) Balances

i. 7 Kg. to 10 Kg. capacity, semi-self indicating type – accuracy 10 gm.-1 No.

ii. 500 gm. Capacity, semi-self indicating type – accuracy 1 gm.- 1 No.

iii. Pan balance – 5 Kg. capacity – accuracy 10 gms.-1 No.

(24) Ovens–electrically operated, thermostatically controlled upto 110^0 C– sensitivity 1^0 C. – 1 No.

(25) Sieves : as per IS 460 – 1962.

i. I.S. sieves – 450 mm internal dia, of sizes 100mm, 80 mm, 63 mm, 50mm, 40 mm, 25mm, 20 mm, 12.5 mm, 10 mm, 6.3mm, 4.75 mm, 2.36mm complete with lid and pan. – 1 Set

ii. I.S. sieves - 200 mm internal dia (brass frame) consisting of 2.36 mm, 1.18 mm, 600 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan. – 1 Set

(26) Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly - 1 No.
(27) Equipment for slump test–slump cone, steel plate, tamping rod, steel scale, scoop-2sets
(28) Dial gauges, 25 mm travel – 0.01 mm / division least count – 2 Nos.
(29) 100 tones compression testing machine, electrical cum manually operated. – 1 No.
(30) Graduated measuring cylinders 200 ml capacity – 6 Nos.
(31) Enamel trays (for efflorescence test for bricks).
i. 300 mm X 250 mm X 40 mm – 2 Nos. } 10 Set
ii. Circular plates of 2850 mm dia – 4 Nos. }

B. **Field testing instruments:** The testing instruments in sufficient quantity as directed by the Engineer- in- Charge shall be made available by the contractor. It shall be ensured that the instruments always remain in serviceable condition else the same will be replaced.

14.0 SPECIFICATIONS FOR FLY ASH BRICKS - All fly ash bricks as brought to the site shall conform to the strength & durability parameters as prescribed in the tender and CPWD specifications.

15.0 The contractor shall submit 'Method Statement' for the approval soon after the award of work. 'Method Statement' is a statement by which the construction procedures for important activities of construction are stated, checked and approved. Method Statement shall have description of the item with elaborate procedures in steps to implement the same. The specification of the materials involved their testing and acceptance criteria, equipments to be used, precautions to be taken, mode of measurements etc.

16.0 TESTING OF MATERIALS.

16.1 The contractor shall arrange carrying out of all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge and shall bear all charges in connection therewith including fee for testing unless specified otherwise. In all cases cost of samples and to & fro carriage shall be borne by the contractor. Contractor shall establish a laboratory at site of work at his own cost. The laboratory shall be equipped with all necessary equipment as per requirement of specification or as per direction of Engineer-in-Charge. A list of laboratory equipments to be maintained by the contractor is enclosed at para 13 page 49 & 50. Establishing the laboratory at site shall not absolve the contractor from fulfilling the criteria of getting the test done in independent approved laboratories as per DG/MAN/308. The decision of the Engineer-in-Charge of allowing any test in the site laboratory shall be final.

16.2 Even ISI marked materials may be subjected to quality test at the discretion of the Engineer-in-charge besides testing of other materials as per the specifications described for the item/material. Whenever ISI marked materials are brought to the site of work the contractor shall, if required by the Engineer-in-charge, furnish manufacturer test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfy the provisions if IS codes relevant to the material and/or the work done.

16.3 Sub-standard Material/Work : In case any material/work is found substandard the same shall be rejected by the Engineer-in-Charge and the same shall be removed from the site of work within 48 hour, failing which the same shall be got removed by the Engineer-in-Charge at the risk and cost of the contractor without giving any further notice and time.

17.0 CONDITIONS OF CONTRACT SPECIFIC TO GREEN BUILDING PRACTICES

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

17.1 SITE

17.1.1 The contractor shall ensure that adequate measures are taken for the prevention of erosion of the top soil during the construction .The contractor shall prepare and implement the Erosion and Sedimentation Control Plan (ESCP) provided to him after approval by the Engineer- in- Charge as part of the larger Construction Management Plan
(CMP). The contractor shall obtain the Erosion and Sedimentation Control Plan (ESCP) Guidelines if required from the Engineer in Charge and then prepare "working plan" for the following month's activities as a CAD drawing showing the construction management, staging & ESCP. At no time soil should be allowed to erode away from the site and sediments should be trapped where necessary.
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 contractor 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 stockpiled to a maximum height of 40 cm in designated areas, covered or stabilized with temporary seeding for erosion prevention and shall be reapplied to site during plantation of the proposed vegetation or as directed by the engineer in charge. Top soil shall be separated from subsoil, debris and stones larger than 50 mm (millimetre) diameter. The stored top soil may be used as finished grade for planting areas.

17.1.2 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. If required use of staging and spill prevention and control plan to restrict the Spilling of the contaminating material on site needs to be resorted. Protection of top soil from erosion by collection storage and reapplication of top soil, constructing sediment basin, contour trenching, mulching etc., may also be directed by the engineer in charge.

17.1.3 No excavated earth shall be removed from the campus unless suggested otherwise by Engineer in Charge. All subsoil shall be reused in backfilling/landscape, etc as per the instructions of the Engineer in Charge. The surplus excavated earth shall be disposed of by the contractor as per the direction of the engineer in charge at his own cost for reuse. A certificate of reuse as required by the Engineer-in-Charge shall be submitted by the contractor.

17.1.4 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 any preservation area shall not be modified unless specifically directed by the Engineer-in-Charge.

17.1.5 The contractor shall not carry out any work which results in the blockage of natural drainage.

17.1.6 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.

17.1.7 Contractor shall reduce pollution and land development impacts from automobiles use during construction.

17.1.8 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 shall be used by the contractor. Also, no overloading shall be permitted.

17.2 CONSTRUCTION PHASE AND WORKER FACILITIES

17.2.1 The contractor shall specify and limit construction activity in pre-planned/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.

17.2.2 Preserve and Protect Landscape during Construction

a The contractor shall ensure that no trees, existing or otherwise, shall be harmed and damage to roots. These shall be prevented during trenching, placing backfill, driving or parking heavy equipment, dumping of trash and protected from oil, paint, and other materials detrimental to plant health. These activities shall 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 at all permitted.

b The contractor shall take steps to protect trees or saplings if any identified for preservation within the construction site using tree guards of approved specification.

c Contractor should limit all construction activity within the specified area as per the Construction Management Plan (CMP) approved by Engineer in Charge.

d 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. The zones of movement of heavy equipment, parking, or excessive foot traffic shall be separated from the fenced plant protection zones.

e The contractor shall ensure that maintenance activities during construction period shall be performed as needed to ensure that the vegetation remains healthy.

17.2.3 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, if required, and adopt a construction waste management plan to achieve these goals. A project wide policy of "Nothing leaves the Site" shall be followed. The Contractor's ingenuity is especially called towards meeting this prerequisite/ credit (as per IGBC LEED India, New Construction v1.0 & GRIHA , MNRE) and may consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation, designating a specific area(s) on the construction site for segregated or commingled collection of recyclable material, and track recycling efforts throughout the construction process, identifying construction haulers and recyclers to handle the designated materials at his cost. The diversion may include donation of materials to charitable organizations and salvage of materials on-site.

17.2.4 Contractor shall collect all construction waste generated on site. He may consider at segregating 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.

17.2.5 The contractor shall provide potable water and other amenities for all workers as per the contract.

17.2.6 The contractor shall provide the minimum level of sanitation and safety facilities for the workers at site as described in CPWD General Conditions of contract. 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 provisions. Adequate toilet facilities shall be provided for the workmen within easy access of their place of work. The total no. to be provided shall not be less than 1per 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 and natural or artificial illumination shall also be provided.

17.2.7 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 also ensure the following activities to prevent air pollution during construction:

- Clear vegetation only from areas where work will start right away
- Vegetate / mulch areas where vehicles do not ply.
- Apply gravel / landscaping rock to the areas where mulching / paving is impractical
- Identify roads on-site if applicable 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 and add surface gravel to reduce source of dust emission to limit amount of fine particles (smaller than 0.075mm) to 10 – 20%
- 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.
- Water spraying shall be done on:

17.2.7.1 Any dusty materials before transferring, loading and unloading
17.2.7.2 Area where demolition work is being carried out
17.2.7.3 Any un-paved main haul road
17.2.7.4 Areas where excavation or earth moving activities are to be carried out

- The contractor shall ensure that the speed of vehicles within the site is limited to 10 km/hr.
- 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.
- 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 / cleaned up immediately before they can infiltrate into the soil / ground or runoff in nearby areas
- Provide hoardings of not less than 3m high along the site boundary, next to a road or other public area at his cost.
- Provide dust screens, sheeting or netting to scaffold along the perimeter of the building at his cost

- Cover stockpiles of dusty material with impervious sheeting at his cost.
- Cover dusty load on vehicles by impervious sheeting before they leave the site at his cost.

17.2.8 Contractor shall be required to provide an easily accessible area that serves the entire building and is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastics, and metals. He shall coordinate the size and functionality of the recycling areas with the anticipated collections services for glass, plastic, office paper, newspaper, cardboard, and organic wastes to maximize the effectiveness of the dedicated areas. Consider employing cardboard balers, aluminium can crushers, recycling chutes, and collection bins at individual workstations to further enhance the recycling program

17.2.9 The contractor shall ensure that no construction leachate (e.g. cement slurry etc.), is allowed to percolate into the ground. Adequate precautions will 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).

17.2.10 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.

17.2.11 The contractor shall comply with the safety procedures, norms and guidelines (as applicable) as outlined in the document Part 7 Constructional practices and safety, 2005, National Building code of India, Bureau of Indian Standards. A copy of all pertinent regulations and notices concerning accidents, injury and first-aid shall be prominently exhibited at the work site. Depending upon the scope & nature of work, a person qualified in first-aid shall be available at work site to render and direct first-aid to causalities. 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.

17.2.12 The contractor shall ensure the following activities for construction workers safety, among other measures at his cost.

- Guarding all parts of dangerous machinery.
- Precautionary signs for working on machinery
- Maintaining hoists and lifts, lifting machines, chains, ropes, and other lifting tackles in good condition.
- Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.
- Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts.
- Provide protective equipment; helmets etc.
- Provide measures to prevent fires. Fire extinguishers and buckets of sand to be provided in the fire-prone area and elsewhere.
- Provide sufficient and suitable light for working during night time.

17.2.13 The storage of material shall be as per standard good practices as specified in Part 7, Section 2 - Storage, Stacking and Handling practices, NBC 2005 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.

17.2.14 The contractor shall provide for adequate number of garbage bins around the construction site and the workers facilities and will be responsible for the proper utilization of these bins for any solid waste generated during the construction. The contractor shall ensure that the site and the workers facilities are kept litter free. Separate bins should be provided for plastic, glass, metal, biological and paper waste and labelled in both Hindi and English with suitable symbols.

17.2.15 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.

17.2.15.1 Contractor shall collect & submit the relevant material certificates for materials if irected by the Engineer in charge 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.

17.2.16 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.

17.2.17 Where possible, the contractor shall select materials / vendors, harvested and manufactured regionally, within a 800-km radius of the project site.

17.2.18 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.

17.2.19 The contractor shall ensure that a flush out of all internal spaces is conducted prior to handover. his shall comprise an opening of all doors and windows for 14 days to vent out any toxic fumes due to paints, varnishes, polishes, etc.

17.2.20 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 in case items of such paints are/is available in schedule of quantities.

Paints
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 Floor coatings - 100 g/L Stains - 250 g/L
Sealers
Waterproofing sealer - 250 g/L Sanding sealer - 275 g/L Other sealers - 200 g/L

17.2.21 The VOC (Volatile Organic Compounds) content of adhesives and sealants used if prescribed in the schedule of quantities must be less than VOC content limits mentioned:
Architectural Applications VOC Limit (g/l less water)
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, VCT and Asphalt Tile adhesives - 50 g/L, Dry Wall and Panel Adhesives - 50 g/L, Structural Glazing Adhesives - 100 g/L, Multipurpose Construction Adhesives – 70 g/L, Substrate Specific Application VOC Limit (g/l less water), Metal to Metal - 30 g/L, Plastic Foams - 50 g/L, Porous material (except wood) - 50 g/L, Wood - 30 g/L, Fiber Glass – 80 g/L

17.2.22 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 or GRIHA program standards and guidelines. Towards meeting the aforementioned building environmental rating standard(s) expert assistance shall be provided to him up on request.

17.2.23 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.

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

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

17.2.26 The contractor shall make himself conversant with the Site Waste Management Program Manual and actively contribute to its compilation by estimating the nature and volume of waste generated by the process/installation in question.

17.2.27 MATERIALS & FIXTURES FOR THE PROJECT

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

b) Unless otherwise stated cement used at site for reinforced concrete, precast members, mortar, plaster, building blocks, etc shall be PPC (Portland Puzzolana Cement). The PPC must meet the requirements of IS 1489 (Part I) as regards to fly ash content in cement The contractor shall obtain from the PPC manufacturer the certificate regarding fly ash content in the PPC in each batch of consignment.

c) The contractor has to comply as per MoEF issued notification 8.0.763(E) dated 14th Sept.1999 containing directive for greater fly ash utilization. Every construction agency engaged in the construction of buildings within a radius of 50 km radius of a Thermal Power Plant, have to use of 100% fly ash based bricks/blocks in their construction.

d) 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.

e) All plumbing and sanitary fixtures installed shall be as per the prescription of the Engineer in Charge and shall adhere to the minimum LPM (litres per minute) and LPF (litres per flush) mentioned. The contractor shall employ 100% zero ODP (ozone depletion potential) insulation; HCFC (hydro-chlorofluorocarbon)/ and CFC (chlorofluorocarbon) free HVAC and refrigeration equipments and / halon-free fire suppression and fire extinguishing systems.

f) The contractor shall ensure that all composite wood products/agro-fibre products used for cabinet work, etc do not contain any added urea formaldehyde resin.

17.2.28 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 install necessary meters and measuring devices to record the consumption of water, electricity and diesel on a monthly basis for the entire tenure of the project.
c. The contractor shall ensure that all run-off water from the site, during construction is collected and reused to the maximum.
d. The contractor shall use treated recycled water of appropriate quality standards for construction, if available.
e. No lights shall be turned on during the period between 6:00 AM to 6:00 PM, without the permission of the Engineer in Charge.

17.2.29 CONSTRUCTION WASTE

Contractor shall ensure that wastage of construction material is within 3%.

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 waste type and measures employed to segregate the waste on site into inert, chemical, or hazardous wastes.

b) All construction debris shall be used for road preparation, back filling, etc, used if described in the schedule of quantities and as per the instructions of the Engineer in Charge, with necessary activities of sorting, crushing, etc.

c) No construction debris shall be taken away from the site, without the prior approval of the Engineer in Charge.

d) The contractor shall recycle the unused chemical/hazardous wastes such as oil, paint, batteries, and asbestos.

e) 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.

17.2.30 Documentation

a) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer in Charge on a monthly basis:

i) Water consumption in litres

ii) Electricity consumption in 'kwh' units

iii) Diesel consumption in litres

iv) Quantum of waste (volumetric/weight basis) generated at site and the segregated waste types divided into inert, chemical and hazardous wastes.

v) Digital photo documentation to demonstrate compliance of safety guidelines as specified here and in the Appendix on Safety Conditions.

b) The contractor shall, during the entire tenure of the construction phase, submit the following records to the Engineer in Charge on a fortnightly basis:

i) Quantities of material brought into the site, including the material issued to the contractor by the Engineer in charge.

ii) Quantities of construction debris (if at all) taken out of the site

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. The document should also include brief explanation and photographic records to show erosion and sedimentation control measures adopted. (Document CAD drawing showing site plan details of existing vegetation, existing buildings, existing slopes and site drainage pattern, staging and spill prevention measures, erosion and sedimentation control measures and measures adopted for top soil preservation during construction

d) The contractor shall submit to the Engineer in Charge after construction of the buildings, a detailed as built quantification of the following:

i. Total materials used,
ii. Total top soil stacked and total reused
iii. Total earth excavated
iv. Total waste generated,
v. Total waste reused,
vi. Total water used,
vii. Total electricity, and
viii. Total diesel consumed.

e) 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.

f) The contractor shall submit to the Engineer in Charge, a detailed narrative (not more than 250 words) on provision for safe drinking water and sanitation facility for construction workers and site personnel.

g) Provide supporting document from the manufacturer of the cement specifying the fly-ash content in PPC used in reinforced concrete.

h) Provide supporting document from the manufacturer of the pre-cast building blocks specifying the fly ash content of the blocks used in an infill wall system.

i) The contractor shall, at the end of construction of the buildings, submit to the Engineer in Charge, submit following information, for all material brought to site for construction purposes, including manufacturer's certifications, verifying information, and test data, where Specifications sections require data relating to environmental issues including but not limited to:

i) Source of products: Supplier details and location of the supplier.

ii) Project Recyclability: Submit information to assist Owner and Contractor in recycling materials involved in shipping, handling, and delivery, and for temporary materials necessary for installation of products.

iii) Recycled Content: Submit information regarding product post industrial recycled and post consumer recycled content. Use the "Recycled Content Certification Form", to be provided by the Commissioning Authority appointed for the Project.

iv) Product Recyclability: Submit information regarding product and product's component's recyclability including potential sources accepting recyclable materials where ever applicable.

j) Provide final certification of well-managed forest of origin to provide final documentation of certified sustainably harvested status: Acceptable wood "certified sustainably harvested" certifications shall include:

a) Wood suppliers' certificate issued by one of the Forest Stewardship Council-accredited certifying agencies;

b) Suppliers' invoice detailing the quantities of certified wood products for project;

c) Letter from one of a certifying agency corroborating that the products on the wood supplier's invoice originate from certified well-managed forests.

i) Clean tech: Provide pollution clearance certificates from all manufacturers of materials

ii) Indoor Air quality and Environmental Issues: Submit emission test data, sourced from the manufacturers, produced by acceptable testing laboratory listed in Quality Assurance Article for materials as required in each specific Specification section.

a) Certifications from manufacturers of Low VOC paints, adhesives, sealant and polishes used at this particular project site.

b) Certification from manufacturers of composite wood products/agro fibre products on the absence of added urea formaldehyde resin in the products supplied to them to this particular site.

c) Submit environmental and pollution clearance certificates for all diesel generators installed as part of this project.

Provide total support to Engineer in Charge and Green Building Consultants appointed by the Engineer- in- Charge in completing all Green Building Rating related formalities, including signing of forms, providing signed letters in the contractor's letterhead whenever required.

17.2.31 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 and as per the specifications of the Engineer in Charge.

b) All lighting installed by the contractor around the site and at the labour quarters during construction shall be CFL bulbs of the appropriate illumination levels. This condition is a must, unless specifically prescribed.

The contractor is expected to go through all other conditions of the LEED & GRIHA rating stipulations.

Failure to adhere to any of the above mentioned items, without approval of the Engineer in Charge, shall be deemed as a violation of contract and the contractor shall be held liable for penalty as per terms of the agreement.

18.1 Formwork for exposed concrete surfaces:-

18.1.1 Where it is specifically shown on the drawings to have original fair face finish of concrete surface without any rendering of plastering, formwork shall be carried put by using plywood on steel plates of approved quality.

18.1.2 The forms shall be constructed so as to produce a uniform and consistent texture and pattern on the face of the concrete. The formwork shall be placed so that all horizontals are constructed of lumber and are not paneled and the formwork joints shall be staggered.

18.1.3 To achieve a finish which shall be free of board marks, the formwork shall be faced with plywood or equivalent material in large sheets. The sheets shall be arranged in an approved pattern. Whenever possible, joints between sheets shall be arranged to coincide with architectural feature, sills, window heads or change in direction of surface. All joints between panels shall be vertical or horizontal unless otherwise directed. Suitable joints shall be approved between sheets. The joints shall be arranged and fitted so that no blemish or mark is imparted to the finished surfaces.

18.1.4 Forms for exposed concrete surfaces shall be constructed with grade strips (the underside of which indicate top of pour) at horizontal constructions joints, unless the use of groove strips is specified on the drawings. The reset forms shall be tightened against the concrete so that the forms will not be spread and permit abrupt irregularities or loss of mortar. Supplementary form ties shall be used as necessary to hold the reset forms tight against the concrete.

18.1.5 For fair faced concrete, the position of through bolts will be restricted and generally as indicated on the drawings.

18.1.6 Plywood and steel plates used in the formwork for obtaining exposed surfaces shall be got approved from Engineer-in-Charge on each use. However no forms will be allowed for reuse if it is doubtful to produce desired texture of exposed concrete.

18.1.7 Cement of only approved shade shall be used preferably of single lot to achieve integrity of texture.

18.2 Class of Surface Finish:-

18.2.1 For Beams & Slabs :

The finish shall be uniform, dense and smooth. no grout, no grain pattern, no crazing and no major blemishes shall be permitted. Abrupt irregularities not exceeding 3mm and gradual irregularities less than 5mm in 2m length only shall be permitted.

18.2.2 For Columns/Wall/Fins :

The finish shall be uniform and smooth leveling the surface of the compacted concrete shall be done with a screed board with power floating the surface and over that steel trowelling the surface under firm pressure characteristics of finish shall be brush marks < 3mm gradual irregularities less than 10mm in 2m.

18.3 Tolerance in Finished Concrete:-

The formwork shall be so made as to produce a finished concrete true to shape, lines, level, plumb and dimensions as shown in the drawings subject to the following tolerance unless otherwise specified in this specification or drawings.

18.4 WALL/COLUMN/FINS:

17.4.1 Variation from the plumb	± 6mm	Upto 3m height
18.4.2 Variation from the plumb of conspicuous liner	± 6mm	Upto 6m height
18.4.3 Variation in the size of wall openings	(+)15mm (-) 6mm	
18.4.4 Variation in parapet wall thickness		
(a) Upto 30cm thickness	± 6mm	

18.5 SLAB, BEAM & GIRDER FORMS:

18.5.1 Variation from the level or from the specified grid for beam soffit before removal of shores,

(a) In any 3m	± 6mm
(b) In any 6m	± 10mm

All the tolerances mentioned above shall apply to concrete dimensions only, and not to positioning of vertical steel or dowels. The tolerances given above are specified for local aberration in the finished concrete surface and should not be taken as tolerance for the entire structure taken as whole for the setting and alignment of formwork. Any error, within the above tolerance limits, or any other if noticed in any of the structure after part or portion stripping of forms, shall be corrected in the subsequent work to bring back the structure to its true line, level and alignment.

19.0 Ultrasonic pulse velocity method test for RCC as per technical circular No. 18 issued vide CE(CSQ) letter No. G-2/SE(QA)/CSQ/69 dated 12.02.2013 shall be carried out as a routine test to assess the homogeneity and uniformity of concrete. The fulfilling criteria and other conditions shall be as detailed, as per the method stated in the aforesaid circular.

SPECIFICATIONS FOR POST TENSIONED SLAB AND BEAMS

Applicable Codes of Practice and Good engineering practices:

Following main codes along with the codes referred within the codes will be applied together for design of slab and beams.

IS 1343

IS 456

BS 8110

It will be responsibility of CONTRACTOR to do a predominantly pre-stressed slab beam construction. In order to achieve this the bending moment due to maximum dead and live load will have to be supported by pt strands alone. In exceptional situations the moment may be resisted by reinforcement up to 15% of the overall moment.

Design should be strictly done in Type 2 serviceability criteria. Tensile stress should not exceed by 3.0 N/Sq.mm.

It shall be responsibility of CONTRACTOR to use structural analysis model made by structural consultants in ETABS or other structural analysis software. CONTRACTOR will be responsible for using and designing strands and reinforcement from the forces derived from such analysis.

Methodology:

Analysis and design will be done with Adapt Floor software using Finite element method (FEM) for slabs. Software generated report shall be provided before undertaking design.

Analysis and design document shall consist of following.

a) Complete unedited computer generated input and output in soft form. This document will be compatible with standard Windows reading software.

b) Document containing nomenclature of terms used with diagrams in input and output of the software.

c) Hardcopies containing input loading and geometrical data and output showing bending moment & shear force envelops & stresses at top and bottom & required reinforcement in graphical form.

Construction:

Construction will be as per drawings and tolerances given herein. Any deviations more than given in design drawings shall be either rectified or shall be accommodated in design by doing reanalysis and redesign.

SPECIFICATIONS

POST - TENSIONED SLAB - TECHNICAL SPECIFICAITONS

Post – Tensioning of the slabs will be carried out in accordance with:

The post – tensioning bonded Flat Slab system shall consist of High Tensile strands of 12.7 mm (0.5 ") dia and contained in a Flat GI duct of 80 mm x 20 mm. Each strand is anchored by means wedge and individually stressed by means of a monostrand jack. The pre – stressing force is transferred to the concrete by a flat anchorage. By use of flat duct the static depth of slab is more efficiently utilized compared to a round duct for same number of strands.

1.0 Material:

1.1 Strands / Anchors

1.1.1 Strands - shall confirm to IS : 14268 and should be of Tata/Usha martin or equivalent make as decided by Engineer-in-charge

1.1.2 Tendons

Tendon will be free from loose rust, oil, grease, tar, paint , mud or any other deleterious substance. Tendons of any type that are damaged , kinked or bent shall not be used

1.2 Sheathing to strands

The GI ducts shall be of the spiral - corrugated type. Unless otherwise specified the material will be galvanized steel strips conforming to IS 513 – Grade D. The thickness of sheathing shall not be less than 0.3 mm.

The GI ducts shall be manufactured in the factory and dispatched to site as per suitable programs so as to minimize period of site storage. Where sheathing duct joints are unavoidable, such joints shall be sealed with adhesive sealing tape to prevent penetration of cement slurry during concreting.

1.3 Anchorages:

Corrosion of the gripping and anchoring system (wedges and anchor heads) will be prevented by oil or grease for the wedges and wedge holes of the anchor heads.

Oil or grease or other corrosion protection agents are non-aggressive and non-degrading. Light corrosion on the other anchorage parts (bearing plates, casting, etc) will be permissible.

In Post-Tensioning systems for bonded tendons, the following anchorages are available:

- Stressing anchorage S – 3 , S - 4 & S -5
- Dead-end anchorage

2.0 Storage and Handling

All materials shall be stored appropriately and in orderly manner.

All materials shall be periodically examined, say at monthly intervals.

Care shall be taken during handling to avoid mechanical damages.

Placing of Post-Tensioning Material The packing of pre- stressing strand shall be removed fast prior to marking of cable for placement in ducts. Proper platform shall be provided to facilitate uncoiling of strand without damage to steel. Care shall be taken to avoid the possibility of the such coming into contact with the ground.

3.0 Construction :

Sequence of works should adhere to the following guidelines:

a. Place bottom layer of rebars in slabs and beams on completion of Bottom Shuttering

b. Lay post-tensioning tendons to correct profiles

c. Place top layer of rebars in slabs and beams

NB: For edge beams where tendons are anchored, open links be used. Top longitudinal rebars and closing links are to be placed after tendons are installed.

It is of paramount importance that the Main Contractor and the Owner's authorized representative shall ensure that the placement of rebars do not interfere with tendon profiling. Should there be any conflict, priority should be given to correct tendon placement.

3.1 Post – Tensioning

Pre – stressing tendon shall be accurately profiled and maintained in position as per drawings. Tendon shall be so arranged that they have a smooth profile. Without sudden bends and kinks. The positioning of pre-stressed cables shall be such as to facilitate easy placement and vibration of concrete in between the tendons. All stressing and dead anchorages shall be allowed.

Sheathing shall be placed in correct position and profiles suitable ladders / spacers made from 4 or 5 mm dia rod may be provided at intervals of approximately 1.0 m. Sheathing shall be tied rigidly with such ladders / spacers bars so that they do not get disturbed during concreting. The method of supporting and fixing shall be such that profile of cables is not disturbed during vibrations, by pressure of wet concrete, by workmen or by construction traffic.

In general, the work shall conform to IS 1343 –1980 or equivalent.

Placement Procedure of Tendons

The tendons are usually assembled on site. The procedure is as follows:

- Positioning and fixing of block-outs for stressing anchorages to the edge formwork or construction joint formwork
- Cut hole to the edge formwork for each anchorage to accommodate
- protruding strands (by Main Contractor
- Place tendons according to tendon layout.
- Fabrication of dead-end anchorages.
- Lay tendons to correct profiles with support bars and chairs.

No damaged anchorage shall be used. Steel parts shall be protected from corrosion at all times. Threaded parts shall be protected by greased wrappings and tapped holes shall be protected by suitable plugs until used. The anchorage components shall be kept free from matter loose rust and any other deleterious coating.

All bearing surfaces of the anchorage shall be cleaned prior to concreting and tensioning . Anchorages shall be securely positioned and maintained during concreting such that the centerline of the duct passes axially through the anchorage assembly. The anchorages shall be recessed from the concrete surface by minimum cover of 100 mm or as per construction drawings whichever is higher.

Special Criteria

- All tendon profiles shall be measured from formwork level.
- Do not damage ducts with tie bars or formwork.
- Avoid stepping on ducts placed.
- Check visually the axis of ducts and fixation at supports before concreting.
- Repair any damage with tapes.
- Pour concrete carefully and avoid any damage of duct and profile by vibrators.

Tolerance of tendon profiles is recommended as follows:

- Slab tendon: Vertical: ±5 mm (at lowest and highest points)
- Horizontal: ±100mm (to avoid small M&E openings or other obstructions, if necessary)

If the above tolerance exceeds the Design Engineer should be consulted.

All tendon profiles shall be measured from Formwork.

3.2 Stressing

Stressing can commence after the concrete has attained minimum cube strength of 28 N/mm2 or otherwise stated in the drawing, whichever is greater.

Tendons which are stressed at both ends may be stressed from one end followed by the other. The sum of elongation from both ends is then compared with the total theoretical extension.

3.3 The stressing procedures are as follows:

1. Initial stressing to 25% of the total force can commence anytime after the concrete has attained a minimum cube strength of 8 N/mm2
2. A spray mark is made on the strands.
3. Sequence of stressing at this stage is not important.
4. No elongation measurement is done during initial stressing. This is due to the varying degree of slack in each strand and therefore, measurements made at this stage would prove erroneous.
5. Proceed with 100% stressing after the concrete has attained the strength required as mentioned above.
6. Measurement of elongation would then be made (say x mm). As the "datum" mark is from the previous 25% stressing, the measurement made would only reflect the elongation of the strand from 25% to 100%.
7. Due to the wedge draw-in upon release of the jack pressure, the measurement made in item (f), i.e. x mm, should include an additional 6mm (approximate)

Following is the method of calculations and measurement.

Actual Elongation $= (x+6mm) \times \frac{}{75\%}$

(0% - 100%) $= 1.333 \times (x + 6mm)$

a. For elevated slab construction, the stripping of Formwork can be carried out after full stressing of the slab is completed. The intermediate props are to provide at the interval of 2.00 m spacing, if the construction/design load of the proposed next above slab is more than the completed floor slab. However, the Resident Engineer/ design Engineer/Consultant on site would have to be consulted before any removal of Formwork is performed.

NB For tendon of less than 10 meters in length, theoretical strand elongation is used as a guide rather than criteria for acceptance.

3.4 Cutting of strands

After completion of stressing works and approval of the stressing records by the authorized representative/Consultant, excess length of strands are to be cut-off by means of a grinding disc or fibre disc cutter minimum 20 mm from the edges where the tendon will be gripped by the anchorage.

3.5 Tendon Stressing Report

Stressing results for each tendon shall be recorded during the stressing operation. Copies of the records shall be given to authorized representative or Consultant who shall approve or comment on these records.

3.6 Interpretation of Tendon Stressing Report

- A perfect log/record to be maintained for all the stressing operations and difficulties encountered, if any, in particular in approved formats for each Tendon.

3.7 Safety Precautions:

Special precaution shall be taken when working near tendons, which have been tensioned or are in the process of being tensioned.

Do not stand behind the jack during all stressing operation.

3.8 Grouting

Grouting Material, Mixing sequence & Quantities

- Maximum Water/Cement ratio : 0. 45*f*
- Sika Intraplast NN or Equivalent : 0. 4% weight of cement (Additive) *f*
- Mixing time :Minimum 3 minutes *f*
- Mixing sequence : Water-cement-Additive

- According to specifications, compressive strength of cube shall be after.

7 days : min. 17 N/mm^2

28 days : min. 32 N/mm^2

3.9 Grouting of Tendons:

- After all tests have been done and the suitable mix is determined, preparation for grouting of tendons may proceed.
- Prior to grouting, anchorage block-outs shall be patched by Main Contractor as specified in the drawings. (Unless, otherwise stated)
- Prior to grouting, the ducts shall be thoroughly cleaned by water or compressed air as per specialist post tensioning agency's advice.
- Grout vents are fitted to the ducts at the alternate high points and at the anchorage's.
- The grout vents at alternate high points are normally fitted 200-500 mm adjacent to the highest point

3.10 Grouting Sequence.

- Start injecting grout from the anchorage end. When regular grout outflow appears at the vents, close vents consecutively in the direction of flow.
- Grout must flow from the outlet until any residual flushing water or entrapped air has been removed. When regular grout outflow appears at outlet, lock the grout vent and maintain the working pressure for approximately 1 minute, the pressure should be constant before stopping the operation.
- Pressure should be duly controlled so as not to cause segregation of grout.
- After 24 hrs of the grouting, the grout hoses left out for injection of grout are cutoff flush to the slab level.

3.11 Interruption of Grouting Operation

- In case of an interruption (more than hour), the grout shall be flushed with water and compressed air.

3.12 Maintain a perfect record of the grout flow reading, w/c ratio, admixture concentration, pump pressure and lock pressure for each set of cables in specific format for all operations.

4.0 The post-tensioning work shall be got executed though following agencies as approved by the Engineer-in-charge.

(a) Ultracon (b) Tech-9 and (c) Crux

Annexure - I

(SPECIMEN)
(Ref. para 3.7 of Particular Specifications and Special conditions)

GUARANTEE TO BE EXECUTED BY CONTRACTORS FOR REMOVAL OF DEFECT AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS

The Agreement made this .....day of .....two thousand and ..... between .....son of .....of .....(hereinafter called the **Guarantor** of the one part) and the PRESIDENT OF INDIA (hereinafter called Government of the other part).

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

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

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

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

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

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

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

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

Signed, sealed and delivered by OBLIGOR in the presence of –

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

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

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

LIST OF APPROVED MATERIALS (CIVIL)

Note :

1. Unless otherwise specified, the brand/make of the material as specified in the item nomenclature or in the particular specifications or in the list of approved materials attached in the tender, shall be used in the work.
2. The Contractor shall obtain prior approval from the Engineer-in-charge before placing order for any specific material/ Brand/ Make.
3. Whenever the specified brand of material is not available thrn, the Engineer-in-charge may approve any material equivalent to that specified subject to proof being offered by the Contractor for its equivalence and its non-availability to his satisfaction.

	MATERIALS:	BRAND/MAKE
1.	Acid/Alkali Resistant Tile	Somany/ Nitco/ Kajariya/ Bell
2.	Premium Acrylic Emulsion Paint: Interior	Asian (Royale)/ ICI (Velvet)/ Berger (Luxol Silk)/ Nerolac Impression
3.	Admixures & Epoxy	FOSROC/ Aquomix/ BAL-ENDURA/ROFF/Dr.Fixit/CICO/SIKA/BASF
4.	Aluminium Composite Panel	Alpolic/ Aluco Bond/ Reynobond/ Euro bond/ Al-strong/Aludewr
5.	Aluminium Extrusions/ Sections	Hindalco/ Indalco/ Jindal/Indian Aluminium Co.
6.	P.T.M.T. Accessories	Prayag, PRAKASH, SHURYA/Supreme/Kingston
7.	Annealed Float Glass	Saint Gobain/ Modi Guard/ Hindustan Pilkington/TATA
8.	Centrifugally Cast Iron Pipe & Fittings	Neco/ RIF/ Kapilansh/ BIC/SKF/Electrosteel
9.	Ceramic Tiles	Kajaria/ Somany/ Nitco/ Oricnt Bell/ Johnson/Varmora/AGL/OASIS/Marbito
10.	Cement Concrete Chequrred tiles	Raj-Tiles/ Bharat/ Rigid Tiles/Advance/Ultra Tiles/NITCO
11.	CP Bottle Trap	Parryware / Hindware/ Jaquar
12.	CP Brass Bibcock/ Pillarcock/ Stopcock/ Angle Valve/ Concealed Stop Cock & CP fittings (Normal Range)	Marc (oriental series)/ Parko/ Jaquar (Continental series)/SPRING COLLECTION OF PRIMA /GEM/ESS/Plumber/L&K Metro/Vardhman/'Coral' series of parryware/'JOY' & 'VINTAGE' series of KEROVIT by Kajaria
13.	CP Waste Coupling	Mark/ Parko or equivalent
14.	Curtain Carrier	Vista levlor or equivalent.
15.	Dash fastener/ Expansion Bolt/Stone Cladding Clamp	M/s Dev Ashish/HILTI/Fischer/Bosch/Wurth/Trixel.
16.	Door closer/ floor springs	Dorma/ Haffle/ Falcon/Godrej/Dorset/Kich/Sandhu/Hardwyn
17.	Drapery Rod	Vista Levlor or equivalent.
18.	Flushing cistern (single/Dual Flush) as per IS: 7231	Sleek Dual flush PVC cistern of Hindware / 'Slimline'of Parryware.
19.	EPDM Gasket	Anand Lescuyer or equivalent.
20.	Epoxy Primer & Paints	Berger/ Pidilite/ CICO/ BASF/ SIKA/Asian/Nerolac/ICI Kansai Akzo Nobel.
21.	Fibre Glass Shelf	Kamal/ Bath King or equivalent.
22.	Float/Clear/Frosted/Toughened/Refractive Glass	Modi Float/ Saint Gobain/ Asahi/AIS/Modiguard.
23.	Flush Doors / Shutters as per IS: 2202	Kutty flush door/ Anchor/ Century/ Kitlam/Archid/JAYNA/Ashiyana Brand by Evergreen Industries/ Bhimsaria Door/ Century/ Greenply /Archid/Kitply/Selected Products Company/Jain Doors pvt. ltd./Duro/Durian
24.	Flush Valve	Aquel/ Marc/ Parryware/ Jaquar.
25.	FRP Shutters/frame	Fibre Glass Engineers/ Raipur/ Aashoo Model or equivalent/JAYNA/ Selected Products Company.
26.	Galvanized/Stainless Steel Anchor Fasteners	Shakti/ Arrow/ Hilti/ Fischer
27.	GI fitting	Tata/ Jindal/ Zenith/UNIK/AVR/Zoloto.
28.	GI Pipe	Tata/ Zenith/ Jindal (HISAR)/Prakash Surya.
29.	Glass Mosaic Tile	Bissazza/ Saon or equivalent.
30.	Gun Metal Gate Valve	Zoloto/ Leader/ SAINT
31.	False Ceiling system	Boral Gypsum / India Gypsum/ Laffarge/ St. Gobain(Gyproc)/ Armstrong/Hunter Dougals/Aearolite/Gridsquare/Interarch
32.	Hardner	Hard crete of Snowcem India/ MC Deritop F.H.
33.	Jet Assembly for EWC	Parryware/ Jaquar/ Grohe/ Kohler
34.	Laminate	Marino/ Greenlam/ Decolam/ Century/ Formica/ Kitlam/Action TESA/Sunmica
35.	Low Level PVC Cistern Single flush	Sleek model Cistern of PVC of Hindware or 'Slimline' model of Parryware, JINDAL.
36.	Melamine Polish	Melamine Gold of Asian Paint/Wudfin of pidilite/Timbertone of ICI Dullex/ Beegel.
37.	Metal False Ceiling	Nittobo / Armstrong / Trac / Durlum / Huntor donglas/Aerolite
38.	Mineral Fibre/Calcium silicate Ceiling	Armstrong / Nitobo / Daiken / Hunter Douglas
39.	Modular SS Railing System	Metallica India / Stark steel Fabricator / D-line International Denmark / Mobel Hardware.
40.	M.S .Pipe (Railing)	Jindal / Prakash Surya/ Tata/ RINIL
41.	Marine Plywood / BWP Ply	Kitply / Duro / Century/ Greenlam
42.	Non asbestos high impact polypropelene reinforced Cement sheet	Everest or equivalent

43.	Oil Bound Distemper/Dry Distemper	Asian (Professional Acrylic Distemper)/Maxilite of ICI / Bisan of Berger/Nerolac (Beauty Acrylic Distemper)
44.	Water closet (Orissa Pan/Indian type) & fittings, accessories as per IS : 2556	Parryware / Hindware /'KEROVIT' by Kajaria/ESSCO by Jaquar.
45.	PE-AL-PE Composite pipes	Jindal or equivalent.
46.	Plastic Connection Pipe	Parryware/Kamal Delux or equivalent.
47.	Plywood/Veneer	Archid/ Kitply/ Green ply/ Century/JAYNA/Green Ply/Merino/Duro/Durian
48.	Polyester Powder Coating	Nerolac/ Berger/ J&N
49.	Poly Sulphide Sealant	PIDISEALbyM/s Pidilite Industry/RDL941-TECHSEALChokseyChemicals/BASF/SIKA/Fosroc
50.	Polymer Modified Cementitious grout	Bal Endura/ PidiliteKero Koal/Ultratech/Ardex/Ferrous Crete.
51.	Pre-laminated Particle Board IS : 12823 (Gr-I/ Type-II)	Kitlam/ Tesa/ Archidply/Eco brand/Century/Bhutan board/Action Tesa/Greenlam/Merino
52.	Primer (Cement Primer)	Decoprime WT of Asian/ white primer of ICI/BP white of Berger/ Nerolac
53.	PVC Rain Water Pipe & Fitting	Finolex/ Classic of Kisan/ Kasta/ Supreme/AKG.
54.	PVC Shutter and frames	Rajshri/ Sintex/Polyline/Duroplast/Jain wood Industries.
55.	PVC Tiles	Arm Strong/ LG or equivalent.
56.	Screws	GKW / Nettle Fold or equivalent.
57.	Silicon Sealant	G.E./ DOW Corning/Waker/BASF/Pidilite/ROFF
58.	Solid Plastic Seat Cover for EWC	EWC standard seat cover white of Parryware/Hindware/'KEROVIT' by Kajaria
59.	Stainless Steel	Jindal Stainless Steel/ Salem Steel
60.	Stainless Steel Screws	Kundan/ Arrow or equivalent.
61.	Stainless steel Sink with or without Draining board.	Nirali/ Hindware/ Frankee/ Cobra/AMC/ Selected Products Company/Parryware/Neelkanth/Nirali
62.	Structural Silicon Sealant	Dow Corning/ Wacker/ GE/ Du-pont
63.	Structural steel	TATA/ SAIL/ RINL/TISCO/JSW Steel ltd./Jindal steel & Power ltd.
64.	Super plasticizer	MC Baucheme/ Sika/ Fosroc
65.	Synthetic Enamel Paints	Gloss Synthetic Enamel of ICI(Dulux)/Asian (Apcolite Premium gloss)/Berger (Luxol Hi Gloss)/ Synthetic Hi Gloss of Nerolac
66.	Terrazzo tiles /Mosaic Tiles	Raj-Tiles/ Bharat/ Rigid Tiles/NIC/A-1/GTC
67.	Cement Concrete Paver Block & Kerb stone	Rigid Tiles/ Raj-Tiles/Advance
68.	Textured Exterior wall paint	Spectrum/ Ultratech / Heritage by Bakelite coating and paints/Asian paint/Berger/Nerolac/Luxture.
69.	Towel Ring/Towel Rod/Towel Rack	Kamal/ Marc or equivalent.
70.	Pre-Painted/powder coated CRC windows	M/s classic engineers and fabricators/ M/s JK Enterprises Jaipur/ Ncl alltek & seccolor ltd. Hydrabad/ ultimate safety metals.
71.	Veneer	Archid/ SUN/ Durian/ Ventura/ NLDK
72.	Virtuosos China Wash Basin Oval	Hindware / Parryware /KEROVIT' by Kajaria/CERA/Jaguar/ESSCO by Jaquar.
73.	Vitreous China Floor moulded European with Cistern Complete	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
74.	Vitreous China Floor Mounted European W.C. without cistern	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
75.	Vitreous China Half stall Urinal	Model No. 6002 Urinal flat back large of Hindware or magnum of Parryware/ ESSCO by Jaquar.
76.	Vitreous China laboratory Sink	Hindware / Parryware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
77.	Vitreous China Low Level Cistern for European W.C.	Hindware / Parryware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
78.	Vitreous China Pedestal for Wash Basin	Pedstal of Parryware / Hindware or equivalent/ CERA/Jaguar/ ESSCO by Jaquar.
79.	Vitreous China Wall Mounted W.C. with vitreous Cistern (component)	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
80.	Vitreous China Wall Mounted W.C. without Cistern.	Parryware / Hindware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
81.	Vitreous China Wash Basin Rectangular without Pedestal	Hindware / Parryware /KEROVIT' by Kajaria/ CERA/Jaguar/ ESSCO by Jaquar.
82.	Vitrified /Porcelain Tile	Marbogranit/ Euro/ Somany/ diamond of Naveen /Granamite of Bell /OASIS/ceramic/ Granito/ Kajaria/ M/s Restile//Rak/ Johnson/Nitco/ Varmora/AGL/Marbito.
83.	Waste Pipe	Kamal with brass checknut/Viking
84.	Water Proofing Compound (Liquid)	Pidiproof Ltd./CICO/ Super plast by M/s Structural water proofing/ Impermo/FOSROC/Dr. Fixit (Pidilite Industries))/BASF/ROFF/SIKA/Ardex Endura (Bal Endura).
85.	White Cement	JK White/ Birla White.
86.	CPVC Pipes as per IS: 15778	AKG/Ashirvad/PRIME FLOW OF KRISHI POLYMERS/Supreme/KSR

		by Kisan irrigation/Flowguard plus by finolex/Prince
87.	Teak wood/hard wood wire mesh & panel doors	A-1 Teak product Indore or equivalent.
88.	Reinforcement steel	Tata/Sail/RINL/Jindal/Jindal steel & power ltd.
89.	Block Boards as per IS: 1659	JAYNA/Century/Greenply/Archid/Kitply or equivalent.
90.	Brass bib cocks/stop cock	Marc/Parko/Jaquar/SPRING COLLECTION OF PRIMA as per IS : 781 or equivalent.
91.	Brass ball cocks (Float valve)	Marc/Parko/Jaquar /SPRING COLLECTION OF PRIMA as per IS:1703 or equivalent.
92.	Water meter	SPRING COLLECTION OF PRIMA as per IS: 779 or equivalent.
93.	HDPE Pipes as per IS:4984	KRISHNA plast pipes/KSR by Kisan irrigation/Supreme/Reliance/Jain
94.	uPVC Pipes as per IS: 4985	KRISHNA plast pipes/AKG/ KSR by Kisan irrigation/Supreme/Astral/Prince/Ashirwad
95.	uPVC Screen and casing pipes for bore well/tube well as per IS : 12818	KRISHNA plast pipes/KSR by Kisan irrigation/Supreme.
96.	uPVC-SWR Pipes SN 8 as per IS: 13592	KRISHNA plast pipes/KSR by Kisan irrigation/Finolex/AKG/Supreme/Prince/Ashirwad/Astral
97.	Wooden Shutter with frame	Siesto Brand by Bramsaria doors or equivalent.
98.	uPVC Windows/Doors	SIESTO Brand by Bhimsaria Polymers/Duroplast/Fenesta/Komerling/Wintech/Aluplast
99.	Cement (OPC/PPC)	A.C.C., Jaypee Cement, Ultratech, Shri Cement, Gujrat Ambuja Cement and Cement Corporation of India.
100.	Corrugated GI Sheets	Tata, Essar , Sail JSW, Bhusan
101.	Colour coated profile sheets	Tata (Ezydeck)/Lloyd Superdeck/JSW/Jindal
102.	Float Glass Profile Sheet TATA (transparent)	Tata, Modiguard, Saint Gobain
103.	Aluminium doors & window fittings (Heavy duty)	Jyoti , Argent, Everest/Kilong/Alualpha/classic/Ebco
104.	Steel/Wood primer / paint	ICI delux, nerolac, berger, asian
105.	Bitumen 85/25	HPCI, IOCL
106.	PVC water storage tanks	Sintex, water well, Siltank, Polywell/Plasto/ 'SILTANK' by Supreme
107.	Bitumen VG-30, VG-10 etc.	As per particular specification of item from IOCL, BPCL, HPCL.
108.	Rigid Phenolic foam for cold and hot insulation as per IS: 13204	Phenotherm manufactured by Bakelite Hylam ltd
109.	Surface Texture Finishes	Heritage manufactured by Bakelite Coatings & paints ltd. or equivalent
110.	FRP Chhajjas	Selected Products Company or equivalent.
111.	FRP Porta cabin	Selected Products Company or equivalent.
112.	G.I. Wire-mesh/Netting	Selected Products Company or equivalent.
113.	Wall Putty (White Cement based)	Buildwell (Walplast Products Pvt. Ltd.)/Birla wall care/JK white/Berger/Asian paints/ferrous Crete
114.	AAC block	'Ecorex' manufactured by Ecorex Buildtech pvt. Ltd. or equivalent.
115.	UPVC Agriculture/Pressure pipes and fittings	AKG Extrusion Pvt Ltd. or equivalent.
116.	UPVC underground drainage & sewerage pipes SN 8 as per IS:15328	KSR by Kisan irrigation/Finolex/AKG/Supreme.
117.	Fabrication of aluminium & UPVC doors, windows, Facades including ACP and glazing work	Skyler World or equivalent.
118.	Fabrication of aluminium structural glazing and aluminium doors & windows.	KANHA ALU AND FAB PVT. LTD., Raipur or equivalent.
119.	Processing and fabrication of glass (toughened, DGU and lamination	Wadhwa Glass Works (P) Ltd., Raipur or equivalent.
120.	Glass reinforced Gypsum (GRG) false ceiling	'Diamond' manufactured by Diamond International Inex pvt. Ltd/Gyproc by Saint Gobain.
121.	Wooden shutter with frame	'Bhimsaria' or equivalent
122.	PPR-C pipes as per IS: 15801	KSR brand/Supreme
123.	PVC fittings as per IS: 10124 and IS: 7834	KSR brand or equivalent
124.	PVC underground draingae pipes (structured wall type) as per IS: 16098	Supreme or equivalent
125.	PVC septic tanks	'Safegard' by Supreme or equivalent
126.	PVC underground water tanks	'Amrutam' by Supreme or equivalent
127.	PVC readymade toilet blocks	'Cleanage' by Supreme or equivalent
128.	PVC chambers & Manholes	Supreme or equivalent
129.	Pre-Painted/powder coated CRC windows	M/s classic engineers and fabricators/ M/s JK Enterprises Jaipur/ Ncl alltek & seccolor ltd. Hydrabad/ ultimate safety metals.
130.	White cement based polymer modified self curring mortor	Ultratech/Dr. Fixit/ Sika/ Fosroc
131.	Gypsum plaster	Ferrous crete/ Gyproc (Elite-90)/ Ultratech
132.	Tile Adhesive	Ferrous Crete / Ardex/ Endure (Gold Star)/ Pidilite (Fevimatex)/ Weabr (Saint Gobain)
133.	Integral water proofing compound with cement (for plaster & mortar)	FOSROC/ Conplast 421/Dr. fixit : LW+/ Sika : sikacim/Asian Paints: Smart care vitalia & equivalent product of BASF/CICO/Ardex Endura
134.	Water proofing for bathroom/toilet/balcony & other wet	Fosroc: Brush Bond/CICO:Tapecrete/Dr. fixti : Pidilite 2k/Sika: Nito

	areas.	Bond/Asian Paints: Damp Block 2k & Equivalent Product of BASF/Ardex endure
135.	Crystalline water proofing compound.	Fosroc : Fosroc crystalline/Dr. Fixit: Dr. fixit crystalline/Sika: Sika Crystalline/Asian Paints:Crystalline Quart & Equivalent Product of BASF/CICO/Ardex Endura
136.	Polycarbonate sheet	GE Plastic/Lexan/MG Polyplast
137.	Fire rated doors	Signum fire protection/Shakti Metdoor/NAVAIR/Sukri/Promat International
138.	Stainless steel railing Accessories	Jindal/Dorma/Kich/GEZE/Godrej/Hardwyn
139.	Stainless steel door & windows fittings	Jindal/Dorma/Kich/Dorset/Godrej/Ozone
140.	Acrylic Distemper 1st quality (washable/Readymix/Low VOC)	Asian Paints (Tractor Aqua Lock Paint)/ Berger: commando or equivalent paints of Nerolac or ICI-Dulux.
141.	Plastic emulsion plaint	Asian paint: (Apcolite Heavy Duty Premium Emulsion paint)/ Nerolac :Impressio/Berger:Easy clean/ICI-Dulax:Velvet touch
142.	Acrylic Smooth Exterior Paint	Asian Paint : (Apex/ Professional Premium Exterior Emulsion/ Nerolac: XL/Berger: Weather coat/ICI-Dulux: Weather Shieled
143.	Premium Acrylic Smooth Exterior Paint with Silicon Additive	Asian paint: Apex Ultima/Nerolac: XL Total/Berger: Weather coat all guard/ICI dulux: Weather Shield max
144.	Fire paint	Asian paints/Akzo Nobel Coatings India ltd./ PROMAT/Jotun
145.	D.I. Pipes & fittings	Electrosteel/Jindal/Tata Ductura/Kapilansh/Kesorom
146.	C.I. manhole covers, frames & CI Gratings	Neco/Raj iron Foundary Agra/BIC/SKF/Kapilansh
147.	SFRC manhole cover & Grating	K.K./Jain Pragati
148.	C.P. Brass fittings (Superior Range)	Jaquar/Grohe/Roca
149.	Sanitary ware fittings & Accessories (Superior range)	Kohler/Roca/Hindware/Parryware
150.	Mirror glass	Atul/Modi Guard/Golden Fish
151.	Extruded Polystyrene Insulation Board	Dow Corning/Supreme/Taxes/Analco
152.	Heat Resistant Tiles	Swastik/Thermatek
153.	Floor Hardener	Ironite/Ferrok/Hardonate
154.	Modular Expansion Joint	Herculus/Sanfield India Ltd. Vexcolt
155.	Glass Wool	Dow Coring/ U.P. Twinga/Isover
156.	UPVC Doors and window hardware	Rotto/Dorset/Kinlong
157.	AAC Block adhesive	Ecorex/Ultratech/Ardex Endura/Ferrous Crete
158.	Ready Mix Plaster	Ultratech/Ferrous Crete/Saint Gobain
159.	Post tension slab	Ultracon technology limited/Tech-9/CRUX
160.	Acoustical Wall paneling	Hush or equivalent to be decided by Engineer-in-charge.

Validate Print Help

Percentage BoQ

Tender Inviting Authority: <ExecutiveEngineer on behalf of the Director AIIMS Raipur. >

Name of Work: < Construction of 166 seat Lecture Theatre at Medical College, AIIMS Raipur.>

Contract No: < NIT-47/EE/AIIMS/RPR/2018-19 (2nd Call)>

Name of the Bidder/ Bidding Firm / Company :	

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	Estimated Rate in Rs. P	TOTAL AMOUNT Without Taxes in Rs. P	TOTAL AMOUNT In Words
1	2	4	5	6	7	8
1	**EARTH WORK**					
1.1	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	64.000	Cum	1070.74	**68527.36**	INR Sixty Eight Thousand Five Hundred & Twenty Seven and Paise Thirty Six Only
2	**CEMENT CONCRETE**					
2.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					
2.1.1	1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size).	25.000	Cum	5748.33	**143708.25**	INR One Lakh Forty Three Thousand Seven Hundred & Eight and Paise Twenty Five Only
3	**REINFORCED CEMENT CONCRETE**					
3.1	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).	2.000	Cum	8622.85	**17245.70**	INR Seventeen Thousand Two Hundred & Forty Five and Paise Seventy Only

3.2	Centering and shuttering including strutting, propping etc. and removal of form for all heights :					
3.2.1	Shelves (Cast in situ)	3.000	Sqm	492.70	**1478.10**	INR One Thousand Four Hundred & Seventy Eight and Paise Ten Only
3.2.2	Lintels, beams, plinth beams, girders, bressumers and cantilevers	14.000	Sqm	400.06	**5600.84**	INR Five Thousand Six Hundred and Paise Eighty Four Only
3.3	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.					
3.3.1	Thermo-Mechanically Treated bars of grade Fe-500 D or more.	250.000	Kg	66.04	**16510.00**	INR Sixteen Thousand Five Hundred & Ten Only
3.4	Providing and fixing sheet covering over expansion joints with iron screws as per design.					
3.4.1	Aluminium fluted strips 3.15 mm thick.					
3.4.1.1	200 mm wide	38.000	Mtr	547.65	**20810.70**	INR Twenty Thousand Eight Hundred & Ten and Paise Seventy Only
4	**BRICK WORK**					
4.1	Brick work with non modular fly ash bricks conforming to IS:12894, class designation 7.5 average compressive strength in super structure above plinth level up to floor 2 level in :					
4.1.1	Cement mortar 1:6 (1 cement : 6 Coarse sand)	20.000	Cum	7195.27	**143905.40**	INR One Lakh Forty Three Thousand Nine Hundred & Five and Paise Forty Only
4.2	Half brick masonry with non modular fly ash bricks of class designation 7.5, conformingio IS :12894, in super structure above plinth and upto floor 2 level.					
4.2.1	Cement mortar 1 : 4 (1 cement : 4 coarse sand)	26.000	Sqm	897.78	**23342.28**	INR Twenty Three Thousand Three Hundred & Forty Two and Paise Twenty Eight Only
5	**STONE WORK**					

5.1	Stone tile work for wall lining upto 10 m height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.					
5.1.1	8mm thick (mirror polished and machine cut edge)					
5.1.1.1	Granite stone of any colour and shade	103.000	Sqm	2096.15	**215903.45**	INR Two Lakh Fifteen Thousand Nine Hundred & Three and Paise Forty Five Only
6	**MARBLE & GRANITE WORK**					
6.1	Providing and fixing stone slab with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.					
6.1.1	Granite Stone of approved shade	235.000	Sqm	3304.04	**776449.40**	INR Seven Lakh Seventy Six Thousand Four Hundred & Forty Nine and Paise Forty Only
6.2	Providing and fixing machine cut, mirror/ eggshell polished , Granite stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.					
6.2.1	Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	14.000	Sqm	7755.46	**108576.44**	INR One Lakh Eight Thousand Five Hundred & Seventy Six and Paise Forty Four Only
7	**WOOD & P.V.C. WORK**					

7.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).					
7.1.1	Second class teak wood	0.094	Cum	108203.30	**10171.11**	INR Ten Thousand One Hundred & Seventy One and Paise Eleven Only
7.2	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.					
7.2.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	4.000	Sqm	2903.86	**11615.44**	INR Eleven Thousand Six Hundred & Fifteen and Paise Forty Four Only
7.3	Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured):					
7.3.1	Rectangular or square	1.000	Sqm	189.71	**189.71**	INR One Hundred & Eighty Nine and Paise Seventy One Only
7.4	Extra for cutting rebate in flush door shutters (Total area of the shutter to be measured).	4.000	Sqm	149.05	**596.20**	INR Five Hundred & Ninety Six and Paise Twenty Only
7.5	Providing and fixing expandable fasteners of specified size with necessary plastic sleeves and galvanised M.S. screws including drilling holes in masonry work /CC/ R.C.C. and making good etc. complete.					
7.5.1	50 mm long	6.000	each	26.43	**158.58**	INR One Hundred & Fifty Eight and Paise Fifty Eight Only
7.6	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.					
7.6.1	Fixed to openings /wooden frames with rawl plugs screws etc.	320.000	Kg	131.20	**41984.00**	INR Forty One Thousand Nine Hundred & Eighty Four Only

7.7	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :					
7.7.1	250x10 mm	2.000	each	365.41	**730.82**	INR Seven Hundred & Thirty and Paise Eighty Two Only
7.8	Providing and fixing bright finished brass sliding door bolt with necessary screws etc. complete :					
7.8.1	300x16 mm	1.000	each	264.90	**264.90**	INR Two Hundred & Sixty Four and Paise Ninety Only
7.9	Providing and fixing bright finished brass handles with screws etc. complete:					
7.9.1	125 mm	4.000	each	199.74	**798.96**	INR Seven Hundred & Ninety Eight and Paise Ninety Six Only
~~7.9.2~~ 7.10	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete :					
7.10.1	300x16 mm	2.000	each	247.87	**495.74**	INR Four Hundred & Ninety Five and Paise Seventy Four Only
7.10.2	250x16 mm	6.000	each	220.74	**1324.44**	INR One Thousand Three Hundred & Twenty Four and Paise Forty Four Only
7.11	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :					
7.11.1	250x10 mm	8.000	each	102.79	**822.32**	INR Eight Hundred & Twenty Two and Paise Thirty Two Only
7.12	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :					

7.12.1	125 mm	16.000	each	59.62	**953.92**	INR Nine Hundred & Fifty Three and Paise Ninety Two Only
7.13	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.					
7.13.1	Twin rubber stopper	4.000	each	44.33	**177.32**	INR One Hundred & Seventy Seven and Paise Thirty Two Only
7.14	Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness .The laminate shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall be 2 mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.	41.000	Mtr	484.76	**19875.16**	INR Nineteen Thousand Eight Hundred & Seventy Five and Paise Sixteen Only
7.15	Providing and fixing to existing door frames.					
7.15.1	30 mm thick Glass Fibre Reinforced Plastic (FRP) panelled door shutter of required colour and approved brand and manufacture, made with fire - retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, with wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, cast monolithically with 5 mm thick FRP laminate for panels conforming to IS: 14856, including fixing to frames	12.000	Sqm	2551.98	**30623.76**	INR Thirty Thousand Six Hundred & Twenty Three and Paise Seventy Six Only
8	**STEEL WORK**					
8.1	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.					

8.1.1	In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	71.000	Kg	76.77	**5450.67**	INR Five Thousand Four Hundred & Fifty and Paise Sixty Seven Only
8.1.2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	200.000	Kg	100.28	**20056.00**	INR Twenty Thousand &Fifty Six Only
9	**FLOORING**					
9.1	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	352.000	Sqm	647.81	**228029.12**	INR Two Lakh Twenty Eight Thousand &Twenty Nine and Paise Twelve Only
9.2	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.					
9.2.1	18 mm thick	12.000	Sqm	408.40	**4900.80**	INR Four Thousand Nine Hundred and Paise Eighty Only
9.3	Providing and fixing glass strips in joints of terrazo/ cement concrete floors.					
9.3.1	40 mm wide and 4 mm thick	689.000	Mtr	61.25	**42201.25**	INR Forty Two Thousand Two Hundred & One and Paise Twenty Five Only
9.4	Providing and fixing 1st quality ceramic glazed floor tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	104.000	Sqm	770.26	**80107.04**	INR Eighty Thousand One Hundred & Seven and Paise Four Only

9.5	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including pointing the joints with white cement and matching pigments etc., complete.	30.000	Sqm	1051.26	**31537.80**	INR Thirty One Thousand Five Hundred & Thirty Seven and Paise Eighty Only
9.6	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including grouting the joints with white cement and matching pigments etc., complete.					
9.6.1	Size of Tile 600x600 mm	885.000	Sqm	1306.00	**1155810.00**	INR Eleven Lakh Fifty Five Thousand Eight Hundred & Ten Only
9.7	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including grouting the joint with white cement & matching pigments etc. complete.					
9.7.1	Size of Tile 600x600 mm	19.000	Sqm	1324.44	**25164.36**	INR Twenty Five Thousand One Hundred & Sixty Four and Paise Thirty Six Only
9.8	Providing and fixing glazed screen printed border tile 75mm wide having thickness 5mm, of approved quality & make, in all shades, design and prints, in dado, over 12mm thick bed of cement mortar 1:3 (1 Cement : 3 Coarse sand) and jointing with grey cement slurry @ 3.3 kg/sqm including pointing with white cement mixed with pigment of matching shade, all complete as approved by Engineer - in - Charge.	31.000	Mtr	153.89	**4770.59**	INR Four Thousand Seven Hundred & Seventy and Paise Fifty Nine Only
10	**FINISHING**					
10.1	12 mm cement plaster of mix :					

10.1.1	1:6 (1 cement: 6 coarse sand)	48.000	Sqm	196.30	**9422.40**	INR Nine Thousand Four Hundred & Twenty Two and Paise Forty Only
10.2	15 mm cement plaster on rough side of single or half brick wall of mix:					
10.2.1	1:6 (1 cement: 6 coarse sand)	73.000	Sqm	227.04	**16573.92**	INR Sixteen Thousand Five Hundred & Seventy Three and Paise Ninety Two Only
10.3	Neat cement punning.	20.000	Sqm	49.70	**994.00**	INR Nine Hundred & Ninety Four Only
10.4	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:					
10.4.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	21.000	Sqm	112.94	**2371.74**	INR Two Thousand Three Hundred & Seventy One and Paise Seventy Four Only
10.5	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :					
10.5.1	Two or more coats on new work	13.000	Sqm	91.47	**1189.11**	INR One Thousand One Hundred & Eighty Nine and Paise Eleven Only
10.6	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :					
10.6.1	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture	202.000	Sqm	131.02	**26466.04**	INR Twenty Six Thousand Four Hundred & Sixty Six and Paise Four Only
10.7	Varnishing with varnish of approved brand and manufacture :					
10.7.1	Two or more coats glue sizing with spar varnish or an under coat of flatting varnish	9.000	Sqm	135.16	**1216.44**	INR One Thousand Two Hundred & Sixteen and Paise Forty Four Only

10.8	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	122.000	Sqm	101.91	**12433.02**	INR Twelve Thousand Four Hundred & Thirty Three and Paise Two Only
10.9	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.					
10.9.1	Two coat	1625.000	sqm	86.22	**140107.50**	INR One Lakh Forty Thousand One Hundred & Seven and Paise Fifty Only
11	**REPAIRS TO BUILDING**					
11.1	Cutting holes of required size in brick masonry wall for fixing of exhaust fan including providing and fixing 300 mm dia PVC pipe conforming BIS-12818 and making good the same etc. complete as per direction of Engineer-in-charge.	4.000	Each	161.47	**645.88**	INR Six Hundred & Forty Five and Paise Eighty Eight Only
11.2	Hacking of CC flooring including cleaning for surface etc. complete as per direction of the Engineer-in-Charge.	1268.000	Sqm	1.75	**2219.00**	INR Two Thousand Two Hundred & Nineteen Only
12	**Dismantling and Demolishing**					
12.1	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of:					
12.1.1	G.S. Sheet	145.000	Sqm	81.79	**11859.55**	INR Eleven Thousand Eight Hundred & Fifty Nine and Paise Fifty Five Only
13	**SANITARY INSTALLATIONS**					
13.1	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I. brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :					

13.1.1	W.C. pan with ISI marked white solid plastic seat and lid	6.000	Each	5254.53	**31527.18**	INR Thirty One Thousand Five Hundred & Twenty Seven and Paise Eighteen Only
13.2	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:					
13.2.1	White Vitreous China Flat back wash basin size 550x 400 mm with single 15 mm C.P. brass pillar tap	8.000	Each	2120.30	**16962.40**	INR Sixteen Thousand Nine Hundred & Sixty Two and Paise Forty Only
13.3	Providing and fixing 8 mm dia C.P. / S.S. Jet with flexible tube upto 1 metre long with S.S. triangular plate to Eureopean type W.C. of quality and make as approved by Engineer - in charge.	6.000	Each	297.28	**1783.68**	INR One Thousand Seven Hundred & Eighty Three and Paise Sixty Eight Only
13.4	Providing and fixing CP Brass 32mm size Bottle Trap of approved quality & make and as per the direction of Engineerin-charge.	12.000	Each	927.70	**11132.40**	INR Eleven Thousand One Hundred & Thirty Two and Paise Forty Only
13.5	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm or 340x410x265 mm sizes respectively.	4.000	Each	1085.91	**4343.64**	INR Four Thousand Three Hundred & Forty Three and Paise Sixty Four Only
13.6	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	8.000	Each	954.30	**7634.40**	INR Seven Thousand Six Hundred & Thirty Four and Paise Forty Only
13.7	Providing and fixing soil, waste and vent pipes :					
13.7.1	100 mm dia					
13.7.1.1	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989	30.000	Metre	1075.29	**32258.70**	INR Thirty Two Thousand Two Hundred & Fifty Eight and Paise Seventy Only
13.7.2	75 mm diameter :					

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13.7.2.1	Centrifugally cast (spun) iron socketed pipe as per IS: 3989	25.000	Metre	927.00	**23175.00**	INR Twenty Three Thousand One Hundred & Seventy Five Only
13.8	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
13.8.1	100 mm dia					
13.8.1.1	Sand cast iron S&S as per IS - 3989	3.000	Each	449.06	**1347.18**	INR One Thousand Three Hundred & Forty Seven and Paise Eighteen Only
13.8.2	75 mm dia					
13.8.2.1	Sand cast iron S&S as per IS - 3989	3.000	Each	370.84	**1112.52**	INR One Thousand One Hundred & Twelve and Paise Fifty Two Only
13.9	Providing and fixing plain bend of required degree.					
13.9.1	100 mm dia					
13.9.1.1	Sand cast iron S&S as per IS - 3989	6.000	Each	390.79	**2344.74**	INR Two Thousand Three Hundred & Forty Four and Paise Seventy Four Only
13.9.2	75 mm dia					
13.9.2.1	Sand cast iron S&S as per IS - 3989	3.000	Each	289.57	**868.71**	INR Eight Hundred & Sixty Eight and Paise Seventy One Only
13.10.1	Providing and fixing single equal plain junction of required degree :100x100x100 mm					
13.10.1.1	Sand cast iron S&S as per IS - 3989	3.000	Each	671.32	**2013.96**	INR Two Thousand &Thirteen and Paise Ninety Six Only
13.10.2	75x75x75 mm					
13.10.2.1	Sand cast iron S&S as per IS - 3989	5.000	Each	472.51	**2362.55**	INR Two Thousand Three Hundred & Sixty Two and Paise Fifty Five Only

13.11	Providing and fixing collar :					
13.11.1	100 mm dia					
13.11.1.1	Sand cast iron S&S as per IS - 3989	9.000	Each	409.75	**3687.75**	INR Three Thousand Six Hundred & Eighty Seven and Paise Seventy Five Only
13.11.2	75 mm dia					
13.11.2.1	Sand cast iron S&S as per IS - 3989	18.000	Each	255.68	**4602.24**	INR Four Thousand Six Hundred & Two and Paise Twenty Four Only
13.12	Providing lead caulked joints to sand cast iron/centrifugally cast (spun) iron pipes and fittings of diameter :					
13.12.1	100 mm	36.000	Each	361.62	**13018.32**	INR Thirteen Thousand &Eighteen and Paise Thirty Two Only
13.12.2	75 mm	36.000	Each	307.54	**11071.44**	INR Eleven Thousand &Seventy One and Paise Forty Four Only
13.13	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :					
13.13.1	100 mm inlet and 75 mm outlet					
13.13.1.1	Sand cast iron S&S as per IS - 3989	9.000	Each	1251.64	**11264.76**	INR Eleven Thousand Two Hundred & Sixty Four and Paise Seventy Six Only
13.14	Cutting chases in brick masonry walls for following diameter sand cast iron/ centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement : 3 coarse sand :6 graded stone aggregate 12.5 mm nominal size), including necessary plaster and pointing in cement mortar 1:4 (1 cement : 4 coarse sand) :					
13.14.1	100 mm dia	3.000	Each	415.00	**1245.00**	INR One Thousand Two Hundred & Forty Five Only

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13.14.2	75 mm dia	3.000	Each	297.10	**891.30**	INR Eight Hundred & Ninety One and Paise Thirty Only
13.15	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour, weighing not less than 105 gms.	4.000	Each	160.83	**643.32**	INR Six Hundred & Forty Three and Paise Thirty Two Only
13.16	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour.					
13.16.1	600 mm long towel rail with total length of 645 mm, width 78 mm and effective height of 88 mm, weighing not less than 190 gms	4.000	Each	493.16	**1972.64**	INR One Thousand Nine Hundred & Seventy Two and Paise Sixty Four Only
13.17	Providing and fixing PTMT 15 mm Urinal spreader size 95x69x100 mm with 1/2" BSP thread and shapes, weighing not less than 60 gms.	4.000	Each	124.25	**497.00**	INR Four Hundred & Ninety Seven Only
13.18	Providing and fixing PTMT urinal cock of approved quality and colour					
13.18.1	15 mm nominal bore, 80 mm long, 42 mm high and 30mm wide with BSP female threads weighing not less than 48 gms	4.000	Each	167.95	**671.80**	INR Six Hundred & Seventy One and Paise Eighty Only
13.19	Making hole up to 20x20 cm and embedding pipes up to 150 mm diameter in masonry and filling with cement concrete 1:3:6 (1 cement : 3 coarse sand 6 graded stone aggregate 20 mm nominal size) including disposal of malba.	10.000	Each	156.98	**1569.80**	INR One Thousand Five Hundred & Sixty Nine and Paise Eighty Only
14	**WATER SUPPLY**					

14.1	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
14.1.1	40 mm nominal outer dia Pipes	50.000	Metre	449.76	**22488.00**	INR Twenty Two Thousand Four Hundred & Eighty Eight Only
14.1.2	50 mm nominal outer dia Pipes	50.000	Metre	639.99	**31999.50**	INR Thirty One Thousand Nine Hundred & Ninety Nine and Paise Fifty Only
14.2	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc.					
14.2.1	20 mm nominal outer dia Pipes	15.000	Metre	332.33	**4984.95**	INR Four Thousand Nine Hundred & Eighty Four and Paise Ninety Five Only
14.2.2	25 mm nominal outer dia Pipes	10.000	Metre	389.21	**3892.10**	INR Three Thousand Eight Hundred & Ninety Two and Paise Ten Only
14.2.3	32 mm nominal outer dia Pipes	10.000	Metre	481.73	**4817.30**	INR Four Thousand Eight Hundred & Seventeen and Paise Thirty Only
14.3	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :					
14.3.1	25 to 40 mm nominal bore	1.000	Each	459.85	**459.85**	INR Four Hundred & Fifty Nine and Paise Eighty Five Only

14.3.2	50 to 80 mm nominal bore	1.000	Each	899.76	**899.76**	INR Eight Hundred & Ninety Nine and Paise Seventy Six Only
14.4	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :					
14.4.1	50 mm nominal bore	1.000	Each	874.91	**874.91**	INR Eight Hundred & Seventy Four and Paise Ninety One Only
14.5	Providing and fixing uplasticised PVC connection pipe with brass unions :					
14.5.1	45 cm length					
14.5.1.1	15 mm nominal bore	18.000	Each	79.10	**1423.80**	INR One Thousand Four Hundred & Twenty Three and Paise Eighty Only
14.6	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.					
14.6.1	15 mm nominal bore	6.000	Each	647.87	**3887.22**	INR Three Thousand Eight Hundred & Eighty Seven and Paise Twenty Two Only
14.7	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.					
14.7.1	15 mm nominal bore	14.000	Each	636.96	**8917.44**	INR Eight Thousand Nine Hundred & Seventeen and Paise Forty Four Only
14.8	Providing and fixing PTMT grating of approved quality and colour.					
14.8.1	Rectangular type with openable circular lid					
14.8.1.1	150 mm nominal size square 100 mm diameter of the inner hinged round grating	9.000	Each	175.06	**1575.54**	INR One Thousand Five Hundred & Seventy Five and Paise Fifty Four Only
15	**ALUMINIUM WORK**					

15.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :					
15.1.1	For fixed portion					
15.1.1.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	72.000	Kg	448.60	**32299.20**	INR Thirty Two Thousand Two Hundred & Ninety Nine and Paise Twenty Only
15.1.2	For shutters of doors, windows & ventilators including providing and fixing rollers, locks and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)					
15.1.2.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	54.000	Kg	519.06	**28029.24**	INR Twenty Eight Thousand &Twenty Nine and Paise Twenty Four Only
15.2	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):					
15.2.1	With float glass panes of 5.50 mm thickness	14.000	Sqm	1171.31	**16398.34**	INR Sixteen Thousand Three Hundred & Ninety Eight and Paise Thirty Four Only

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15.3	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.					
15.3.1	Upto 5mm depth and 5 mm width	104.000	Metre	72.86	**7577.44**	INR Seven Thousand Five Hundred & Seventy Seven and Paise Forty Four Only
16	**NEW TECHNOLOGIES AND MATERIALS**					
16.1	Providing and fixing false ceiling at all heights with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS:476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity < 0.043 W/m K as per ASTM 518:1991, in true horizontal level suspended on interlocking metal powder coated T-Grid of hot dipped galvanised iron section of 0.40 mm thick on Silhouette profile,rotary stiched double webbed white with 6 mm reveal profile (white/black),comprising of main-T runners of size 15x42 mm of length 3000 mm, cross - T of size 15x42 mm of length 1200 mm and secondary intermediate cross-T of size 15x42 mm of length 600mm to form grid module of size 600 x 600 mm, suspended from ceiling using galvanised mild steel items (galvanizing @ 80 grams per sqm) i.e. 50 mm long, 8 mm outer diameter M-6 dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x2 mm. Galvanised iron perimeter wall angle of size 22x19x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450 mm center to center and 40mm long dry wall S.S screws. The work shall be carried out as per specifications, drawing and as per directions of the Engineer-in-Charge.					
16.1.1	With 15 mm thick integral densified micro edge light weight calcium silicate false ceiling tiles	234.000	Sqm	2054.73	**480806.82**	INR Four Lakh Eighty Thousand Eight Hundred & Six and Paise Eighty Two Only
Total in Figures					**4327700.00**	INR Forty Three Lakh Twenty Seven Thousand Seven Hundred and Paise Thirty Seven Only
Quoted Rate in Figures			**Select**		**0.00**	INR Zero Only
Quoted Rate in Words		**INR Zero Only**				