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NAME OF WORK: Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).

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Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

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Certified that the Bid document contains pages 1 to 215 (One to Two Hundred Fifteen only) pages.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

PART-A

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

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

(Applicable for inviting open bids)

The **Executive Engineer, Lucknow-I, C.P.W.D., Lucknow** for **&** on behalf of President of India invites online Percentage rate bids from approved and eligible contractors of CPWD for the following work(s):

S. No.	NIT NO.	Name of work and location	Estimated cost put to bid (Rs.)	Earnest Money	Stipulated Period of Completion of work (in months)	Last date of online submission of bid, copy of receipt of deposition of orginal EMD and other documents as specified in the bid document.	Time & date of opening of tender
1	2	3	4	5	6	7	8
1	**66/EE/Lucknow-I/2026-27**	**Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**	**Civil:- Rs. 10,86,91,114/-** **Elect.: Rs. 4,73,83,043/-** **Total Rs. 15,60,74,157/-**	**Rs. 25,60,742/-**	**12 Months**	**Upto 03:00 PM on 19.11.2026**	**At 03:30 PM on 19.11.2026**

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.
3. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website https://etender.cpwd.gov.in or www.cpwd.gov.in free of cost.

*** To be filled by Executive Engineer.**

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

4. But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer, inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand draft or Bankers Cheque or Fixed Deposit Receipts or/ and Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank towards EMD in favour of Executive Engineer as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/ AE), CPWD and other documents as specified.
5. Those contractors who are not registered or have not updated their profile on the website mentioned above, are required to get registered / update their profile beforehand. The necessary training materials including the videos with step to step process are available on download section of https://etender.cpwd.gov.in
6. The intending bidder must have valid Class-III digital signature certificate with encryption key (combo type) to perform any operations / transactions on the e-tendering portal / website and the bidder should download and install the eMsigner on their system as per instructions available on download section of https://etender.cpwd.gov.in
7. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
8. Contractor can upload documents in the form of JPG format and PDF format.
9. Contractor must ensure to quote rate in the prescribed column(s) meant for quoting rate in figures appears in yellow colour and the moment rate is entered, it turns sky blue.

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

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

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

(i.) Insurance Surety Bond, Demand Draft/ Account Payee Banker's Cheque / FDR/ Bank Guarantee of any commercial Bank against EMD.

(ii.) Enlistment Order of the Contractor.

(iii.) GST Registration Certificate if already obtained by the bidder.

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

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

(iv) Copy of receipt for deposition of original EMD issued from division office of any Executive Engineer (including NIT issuing EE/AE), CPWD.

Note: Bidder should ensure himself that above documents are uploaded in correct formate and at correct location on the website.

Executive Engineer
Lucknow-I
CPWD, Lucknow

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I.

RECEIPT OF DEPOSITION OF ORIGINAL EMD

(Receipt No. ……#…….……. / date ……..…#……)

Name of Work: **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

1. NIT No. : **66/EE/Lucknow-I/2026-27**
2. Estimated Cost: **Rs. 15,60,74,157/-**
3. Amount of Earnest Money Deposit: **Rs. 25,60,742/-**

   In favour of Executive Engineer, Lucknow Central Division-I, CPWD, Lucknow.
4. Last date & Time of submission of Bid : **19.11.2026 at 03:00 PM**

Name of Contractor : ……#….....

1. Form of EMD ……#….....
2. Amount of Earnest Money Deposit ……#…….....
3. Date of submission of EMD ……#……..……

…….…….

Signature, Name and Designation of EMD
receiving officer (EE/AE(P)/AE/AAO) alongwith office stamp

* To be filled by EE inviting tender.
# To be filled by EMD receiving EE.

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-II

ON NON-JUDICIAL STAMP PAPER OF MINIMUM RS. 100

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

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

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

   OR**

   Whereas the Executive Engineer …….. (name of division) ……., CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number ……..... with ……..... (name and address of the contractor) …….. (hereinafter called "the Contractor") for execution of work …… (Name of work) ……... The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. ……..……. (Rupees …… only) valid upto …….. (date)..…… as Performance Guarantee/Security Deposit/Mobilization Advance from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

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

3. We, ……(indicate the name of the Bank) ……, do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. …….. (Rupees …….only)

4. We, …… (indicate the name of the Bank) ……, further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for

payment there under and the Contractor shall have no claim against us for making such payment.

5. We, …… (indicate the name of the Bank) ……., further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. We, …… (indicate the name of the Bank) …….., further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.
7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.
8. We, ……. (indicate the name of the Bank) ……., undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This Bank Guarantee shall be valid up to ……. unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. …… (Rupees …….. only) and unless a claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date .....

Witnesses:

1. Signature…… Authorized signatory

   Name and address Name

   Designation

   Staff code no.

2. Signature ……. Bank seal

   Name and address

* Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

Form 'F'

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

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

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

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

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

Signature of notary with seal **Signature of bidder or an authorized person of the firm with stamp**

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

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

CPWD-6 FOR e-Tendering

1. Percentage rate bids are invited on behalf of President of India from approved and eligible contractors of CPWD for the **Work of Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

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

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

1.1 The work is estimated to cost **Rs. 15,60,74,157/-.** This estimate, however, is given merely as a rough guide.

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

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

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

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

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

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

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

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

~~**Note:-**~~

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

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

~~1.2.2 Criteria of eligibility for CPWD as well as non CPWD contractors,~~

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

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

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

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

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

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

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

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

~~But for such bids, Class I contractors of CPWD are eligible to submit the bids without submission of work experience certificate and affidavit. Therefore, CPWD class I~~

~~contractors shall upload two separate letters for experience certificate and affidavit that these documents are not required to be submitted by them. Uploading of these two letters is mandatory otherwise system will not clear mandatory fields.~~

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

OR

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

a. Part-I : (To be handed over on date of start) Hostel Block, A & D, Kitchen, Dinning, Reception, medical room & Type-V Faculty flats 04 nos. **(Execution time : 05 Months from start of work)**
b. Part-II : (To be handed over after successful handing over of Part-I) Hostel Block, B & C, Type-V Faculty flats 04 nos. **(Execution time : 04 Months from handing over for Part-I)**
c. Part-III : (To be handed over after successful handing over of Part – II) Faculty flats 07 nos. & other miscellaneous works. **(Execution time : 03 Months from handing over for Part-II)**

(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 work.~~

5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen on website https://etender.cpwd.gov.in or www.cpwd.gov.in free of cost.
6. After submission of the bid, the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. When bids are invited in three stage system and, if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.
9. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks(drawn in favour of Executive Engineer, Lucknow Central Division-I, CPWD, Lucknow) shall be scanned and uploaded on the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a

receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

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

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

Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in e- tender notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at 03:30 PM on **19.11.2026** .

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

11. The contractor whose bid is accepted will be required to furnish performance guarantee in favour of **Executive Engineer, Lucknow Central Division-I, CPWD, Lucknow** at specified percentage of the tendered amount as mentioned in schedule E and within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. If applicable and also ensure the compliance of aforesaid provisions by the

subcontractors, if any engaged by the contractor for the said work within the period specified in Schedule F.

12. **The description of the work is as follows: Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances, which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site, whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost, all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise, specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

13. The Competent Authority, for & on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.

15. The Competent Authority, for & on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

16. The contractor (enlisted or non-enlisted in CPWD) shall not be allowed to participate in the tender for works(s) in the CPWD Zone/Circle/Division/Sub-Division responsible for award and/or execution of contract(s), in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Chief Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working or are subsequently employed by him and who are near relatives to any Officer working in the CPWD. Any breach of this condition by the contractor would render him liable to be debarred for a period upto two years from tendering in CPWD as decided by the accepting authority mentioned in Schedule F and his decision will be excepted from Clause-25.

17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is

found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.

18. The bids for the work shall remain open for acceptance for a period of 30 (thirty) days from the date of opening of bids in case of single bid system ~~and 75 (seventy five) days from the date of opening of technical bids in case bids are invited in 2 or 3 bid system~~.

Further

(i) If any tenderer withdraws his tender within 7 days after last date and time (15:00 Hrs.) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely, irrespective of letter of acceptance for the work is issued or not.

(ii) If any tenderer withdraws his tender after expiry of 7 days after last date and time (15:00 Hrs.) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.

(iii) Withdrawal of the tender, by the tenderer, shall only be made through e-tender portal. Any other method i.e. through letter / e-mail etc. shall not be considered. The tender inviting authority gets intimation through SMS and e-mail in this regard.

(iv) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the re-bidding process of the same work.

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

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

(b) Standard C.P.W.D. Form 7/8 or other Standard C.P.W.D. Form as applicable.

20. **For Composite Bids**

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

20.1.2 The bid document will include following three components:

Part A:- CPWD-6, CPWD-7/8 including Schedule A to F for the major component of the work, Standard General Conditions of Contract 2023 Maintenance works as amended/ modified up to last date of submission of bids.

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

Part C:- Schedule A to F for minor component of the work (competent authority under Clause 2 and Clause 5 shall be same authority as mentioned in Schedule A

to F for major components), General/specific conditions, specifications and schedule of quantities applicable to minor component(s) of the work.

20.1.3 The bidders must associate himself, with agencies as per NIT conditions.

20.1.4 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.

20.1.5 After acceptance of the bid by competent authority, the EE in charge of major component of the work shall issue letter of award for & on behalf of the President of India. After the work is awarded, the main contractor will have to enter into one agreement with EE in charge of major component and has also to sign two or more copies of agreement depending upon number of EE's/DDH in charge of minor components. One such signed set of agreement shall be handed over to EE/DDH in charge of minor component(s).

EE of major component will operate Part A and Part B of the agreement.

EE/DDH in charge of minor component(s) shall operate Part- C alongwith Part A of the agreement.

20.1.6 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.

20.1.7 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.

20.1.8 The main contractor has to associate agencies for specialized component(s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-Charge of relevant component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-Charge of relevant component(s).

20.1.9 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-Charge of relevant specialized component(s).

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

20.1.10 The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be submitted to EE/ DDH in charge of each relevant component as well as to EE-in-charge of major component. In case of change of associate contractor, the main agency(s) has to enter into MoU/agreement with the new contractor associated by him.

20.1.11 Running payment for the major component shall be made by EE of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer- in-Charge of the discipline of minor component directly to the main contractor. The CMB shall be maintained independently by Engineer-in-Charge of major and minor components.

20.1.12A. The composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be

recorded by Engineer-in-Charge of major component after record of completion certificate of all other components.

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

20.1.13 **In case of non-availability of budget or any other unforeseen situation the scope of work may be reduced. In case of reduction in scope of work no claim on account of reduction in value of work, loss of expected profit, consequential overheads etc. shall be payable to the contractor**.

21. The intending bidders are required to update their profile in CPWD e- tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile/uploading tender can be resolved through the concerned Executive Engineer/ Assistant Engineer (Phone no 0522-2329438, e- mail Id eelcd1.cpwdlu-up@nic.in) or ERP helpline no. 18001803286 or e-mail ld cpwd.support@techmahindra.com. The e- tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

*To be filled in by Executive Engineer.

Executive Engineer
Lucknow-I
CPWD, Lucknow

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

BRIEF PARTICULARS OF THE WORK

1. Salient features of the work for which bids are invited are as under:

S. No.	Name of work	Estimated cost	Period of completion
1	**Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**	**₹ 15,60,74,157/-**	**12 Months**

2. (a) **Location :** - The work site is NBSC LDA Colony, Kanpur Road, Lucknow (UP).

(b) **Scope of Work** : - **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

3. **The broad scope of Civil works :**

1	**Earth Work**	:	Earth work involving excavation trenches in all kinds of soil as per site conditions. Post Construction Anti-Termite treatment of existing masonry.
2	**Door**	:	Teak wood frame for rooms and 35 mm thick non-decorative flush door shutter laminated and provided with stainless steel fittings. WPC door shutter and frame in toilets.
3	**Windows**	:	UPVC Sliding door and window.
4	**Cladding**	:	Granite and Italian marble wall lining at Reception and Dining Hall. Wall tiles in hostel bathroom and Type-V quarters. Wooden wall lining at Reception area.
5	**Flooring**	:	Double charged Vitrified floor tiles in Hostel-rooms and in Type-V quarters area except DMD & CMD room. Ceramic glazed floor tiles in toilet. Granite stone flooring in Reception, corridors, lobby& stair case etc. Italian marble flooring in Dinning hall. Provision of wooden flooring in DMD & CMD room as per discussion held in the chamber of director NBSC on dated 11/08/2025. Heavy duty floor tile in courtyard, balcony and in parking area etc. Wooden Flooring in room.
6	**Railing**	:	Tubular steel railing in all the staircases and roof at Type-V quarters etc.
7	**Roofing**	:	Baffle false ceiling in Reception and Dining hall as per discussion held in chamber of Director NBSC on dated 11/08/2025. A combination of gypsum false ceiling, mineral fiber false ceiling in BMO doctor cabin room. Gypsum false ceiling in Hostel room for cob lighting as per discussion held in chamber of Director NBSC on dated 11/08/2025. Metallic tiles ceiling in Hostel toilets.
8	**Finishing**	:	Melamine polish on wood work. Deluxe Multi surface paint on internal walls, and synthetic enamel paint on steel work. Grit Plaster on exterior wall for repair in hostel room.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

9	**Sanitary Installation**	:	Floor Mounted and wall hung European WC with oval shape wash basin with and without sensor-based pillar tap and urinal in BMO doctor toilet. SCI Hub less pipe for sanitary work.
10	**Water supply**	:	CPVC pipe of 20 mm and 15 mm Dia pipe for concealed and exposed on wall to carry water from overhead tank. Premium CP brass fittings shall be used for all the toilets. Over head tank for hostel and type-V quarter.
11	**Water proofing-roof treatment**	:	Cement based water proofing treatment for sunken portion of toilet. fiber reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 for water proofing treatment of terrace.
12	**WPC Jali**	:	WPC Jali shall be provided for shaft area backside of toilet.

All required item of work for work has been taken in estimate.

Scope of work (E & M)

1. Wiring of light/fan/exhaust/fresh air fan point/call bell point and wiring for light & power plugs with 1.5Sq. mm & 4 Sq. mm FRLS PVC insulated copper conductor single core cable with suitable size GI boxes along with modular type accessories.
2. SITC of 2x2 ft. recess type LED panel with all accessories.
3. SITC of Surface / Recessed type LED down lighter with diffused diffuser for low glare.
4. SITC of Non DALI dimmable suspended down true matrix 4Ft long linear standalone LED luminaire.
5. SITC of step light & floor mounded floor lamp LED lamp with all accessories.
6. SITC of decorative wall bracket & 24 watt 5 mtr. LED strip light with all accessories.
7. SITC of recess type luminaire & circular architectural pendant LED fittings.
8. SITC of Non dimmable pendant / recess type luminaire with HE-high efficiency LED fittings.
9. SITC of decorative Mirror light with Nickel finish fittings with all accessories.
10. SITC of surface mounted LED batten with diffused diffuser for low glare.
11. SITC of LED bulk head with all accessories.
12. SITC of 300 mm heavy duty exhaust/250 mm fresh air fan with all accessories.
13. SITC of Non recirculating centrifugal Air Curtains with all accessories
14. SITC of LED lowbay / midbay, spot light & bed light with accessories.
15. SITC of TPN distribution boards for light & power load with suitable rating MCB's.
16. SITC of SMDB, outdoor type panel with all accessories
17. SITC of LAN system with all accessories.
18. VRV & VRF system with all accessories
19. Earthing with GI strip with all accessories.
20. SITC of Kitchen equipment with all accessories.

All the items considered necessary have been included in this estimate, unforeseen items is any will be met out from contingencies

GOVERNMENT OF INDIA **CPWD-7**

CENTRAL PUBLIC WORKS DEPARTMENT

PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

(A) Tender for the work of: **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

(i) To be uploaded by **03:00 PM** on **19.11.2026** at https://etender.cpwd.gov.in or www.cpwd.gov.in

(ii) To be opened in presence of tenderers who may be present at **03:30** PM on **19.11.2026.** in the office of **Executive Engineer, Lucknow-I, C.P.W.D., Lucknow.**

TENDER

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work **"Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP)."**

I/We hereby tender for the execution of the work specified for the President of India with in the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

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

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

A copy of earnest money deposit **receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed)** issued by a **Commercial** Bank, is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The

said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tenderingprocess 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 inCPWD in future forever. Also, if such a violation comes to the notice of Department beforedate of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit / Performance Guarantee.

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

Dated — Signature of Contractor

Witness: — Postal Address

Address:

Occupation:

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

ACCEPTANCE

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

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

(a)

(b)

(c)

For & on behalf of President of India

Signature ……..

Dated: Designation …….

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

PART-B

(Civil Work)

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

PROFORMA OF SCHEDULES

(Separate Performa for Civil, Elect. ~~& Hort. Works~~ in case of Composite Tenders) (Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'
Schedule of quantities **(Attached Page No. 90 to 132)**

SCHEDULE 'D'
Extra schedule for specific requirements/document for the work, if any. **Nil**

SCHEDULE 'E'
Reference to General Conditions of contract – Applicable GCC is GCC Maintenance works 2023, as modified and corrected up to previous day of last date of submission of bids.

Name of Work: Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).		
Estimated cost of the work:		
	Civil Items of Work	**Rs. 10,86,91,114/-**
	Electrical Items of Work	**Rs. 4,73,83,043/-**
	Total	**Rs. 15,60,74,157/-**
Earnest money	**Rs. 25,60,742/-**	
Performance Guarantee	**a) 5% of the tendered value or Estimated Cost Put to Tender (ECPT) (whichever is higher)** **b) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tender amount.**	
Security Deposit	**2.5% of the tendered value**	

SCHEDULE 'F'
GENERAL RULES & DIRECTIONS:

Officer inviting tender	**Executive Engineer, Lucknow-I, C.P.W.D., Lucknow**

Definitions:

2(vi) **Engineer-in-Charge**

For Civil items of work	**Executive Engineer, Lucknow-I, C.P.W.D., Lucknow**
For Electrical items of work	Executive Engineer (Elect.), Lucknow Electrical Division, C.P.W.D., Lucknow.
~~For horticulture items of work~~	~~**DD(Hort.), Lucknow Horticulture, CPWD, Lucknow**~~

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

2(viii) Accepting Authority **Chief Engineer (Lucknow), CPWD, Lucknow**

2(x) Percentage on cost of materials and labour to cover all overheads and profits 15%

2(x)(a) **Standard Schedule of Rates:**

Civil Items of Work: Delhi Schedule of Rates 2023 with amendments up to day previous to last date of submission of bids

Electrical Items of Work: As mentioned in electrical part

~~Horticulture Items of Work:~~ ~~As mentioned in horticulture part.~~

2(xi) Department: Central Public Works Department

9(ii) Standard CPWD contract Form: GCC 2023 for maintenance works, CPWD Form-7/8 as amended/modified up to previous day of last date of submission of the bids.

Clause 1	i) Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance. ii) Maximum allowable extension **with late fee @ 0.1% per day of Performance Guarantee amount beyond the period as provided in (i) above**	07 Days 03 Days
Clause 2	Authority for fixing Compensation under Clause 2	**Chief Engineer (Lucknow), CPWD, Lucknow.**

Clause 5	**Applicable**	
	(i) Number of days from the date of issue of letter of acceptance for reckoning date of start	**10 Days or date of handing over of site which ever is later.**
	(ii) Time allowed for execution of work	**12 Months**
	(iii) Mile stones	**Refer as Page-76**

Authority to Decide

(i)	**Authority to convey the decision of shifting of mile stone and extension of time- Executive Engineer, Lucknow-I, C.P.W.D., Lucknow.**
(ii)	**Authority to decide rescheduling of mile stone and extension of time- Chief Engineer (Lucknow), CPWD, Lucknow or successor thereof or Higher authority.**
(iii)	**Shifting of date of start in case of delay in handing over of site- Chief Engineer (Lucknow), CPWD, Lucknow or successor thereof or Higher authority.**

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

PROFORMA OF SCHEDULE clause 5 Schedule of handing over the site

Part	Portion of site	Description	Time period for handing over reckoned from date of issue of letter of intent
Part-I	Portion without any hindrance	Hostel Block, A & D, Kitchen,Dinning, Reception, medical room & Type-V Faculty flats 04 nos.	**10 Days (Execution time : 05 Months from start of work)**
Part-II		Hostel Block, B & C, Type-V Faculty flats 04 nos.	To be handed over after successful handing over of Part-I **(Execution time : 04 Months from handing over for Part-I)**
Part-III		Faculty flats 07 nos. & other miscellaneous works.	To be handed over after successful handing over of Part – II) **(Execution time : 03 Months from handing over for Part-II)**

Clause 6 :	Computerized Measurement Book/ Electronic Mode of Measurement through:	EMB CPWD ERP Portal.
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. 90.00 lacs**
Clause 7A	Whether Clause 7A shall be applicable	**Yes** (No Running Account Bill shall be paid for the work till the applicable labour licences, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-charge).
Clause 8	Competent Authorities to inspect and issue Part/Final Completion Certificate	**Chief Engineer(Lucknow), CPWD, Lucknow or successor thereof or Higher authority**
Clause 8A	Authority to decide compensation on account if contractor fails to submit completion plans.	**Chief Engineer (Lucknow), CPWD, Lucknow**
Clause 10A	List of testing equipment to be provided by the contractor at site lab.	**Refer page No. 36-37**
Clause 10 B (ii)	Whether clause 10-B (ii) shall be applicable.	**No**

Clause 10C : Applicable

Component of Labour expressed as percent of total value of work – Y (Payment under this clause for this component is admissible when contractor submits proof of having paid wages to workers through bank or ECS or online transfer to their bank accounts.)	25%

Clause 10CC **Not Applicable**

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Clause 11	**Specification to be followed for execution of work:**
For Civil items of work	CPWD Specifications 2019 Vol. 1 and Vol. 2 with correction slips issued up to day previous to last date of submission of tender (Hereinafter called CPWD specifications also)
For Electrical items of work	As per electrical component
~~For Hort. items of work~~	~~As per Hort. Component~~

Clause 16	**Competent Authority for Deciding reduced rates:**	
	For Civil items of work	**Chief Engineer (Lucknow), CPWD, Lucknow or successor thereof or Higher authority.**
	For Electrical items of work	**Chief Engineer (Lucknow), CPWD, Lucknow or successor thereof or Higher authority.**
	~~For Horticulture items of work~~	~~**Chief Engineer (Lucknow), CPWD, Lucknow or successor thereof or Higher authority.**~~

Clause 18	List of mandatory machinery, tools & plants to be deployed by the contractor at site.	**As per Page No. 74-75**
Clause 19C	**Authority to decide penalty for each default**	**Chief Engineer (Lucknow), C.P.W.D., Lucknow or successor thereof.**
Clause 19D	**Authority to decide penalty for each default**	
Clause 19G	**Authority to decide penalty for each default**	
Clause 19K	Employment of skilled / semi skilled workers.	**Not Applicable**

Clause 25

(i) Conciliator	**:**	**ADG(Lucknow), CPWD, Lucknow**
(ii) Arbitrator Appointing Authority	**:**	**Chief Engineer (Lucknow)**
(iii) Place of Arbitration	**:**	**Lucknow**

Clause 32	**Requirement of Technical Representative(s) and Recovery Rate**						
Sl. No.	**Minimum Qualification of Technical representative**	**Discipline**	**Designation (Principal Technical/Technical representative**	**Minimum experience (Years)**	**Number**	**Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 32**	
						Figures	Words
1	Graduate Engineer	Civil	Project Manager	10 (and having experience of one similar nature of work)	1	Rs. 30,000/- per month per person	Rs. Thirty Thousand per month per person
2	Graduate Engineer Or Diploma Engineer	Civil	Project/ Site Engineer	5 Or 10 respectively	1	Rs. 25,000/- per month per person	Rs. Twenty five Thousand per month per person

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

3	Graduate Engineer Or Diploma Engineer	Civil	Planning /quality/billing Engineer	2 Or 5 respectively	1	Rs. 15,000/- per month per person	Rs. Fifteen Thousand per month per person
4	Graduate Engineer Or Diploma Engineer	Civil	Project Planning /quality/billing Engineer	2 Or 5 respectively	1	Rs. 15,000/- per month per person	Rs. Fifteen Thousand per month per person

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers**.**

Diploma holder with minimum 10 years relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Clause 38

i)	a)	Schedule/ statement for determining theoretical quantity of cement & bitumen on the basis of **Delhi Schedule of Rates 2023** printed by CPWD	**D.S.R. 2023 with** correction slips up to day previous to the last date of submission of bids
ii)		**Variations permissible on theoretical quantities**	
	a)	Cement for works with estimated cost put to tender not more than Rs. 25 lakhs.	**3% plus/minus**
		For works with estimated cost put to Tender is more than Rs. 25 lakhs	**2% plus/minus**
	b)	Bitumen all works	**2.5% plus & nil on minus side.**
	c)	Steel reinforcement and structural steel Sections for diameter, section and category.	**2% plus/minus.**
	d)	All other materials	**Nil**

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

GENERAL REQUIREMENTS FOR THE TENDER

Name of Work: **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

1 The tenderer is advised to read and examine the tender documents for the work and the set of drawings available with Engineer-in-charge. He should inspect and examine the site and its surroundings by himself before submitting his tender.

2 Separate schedule of quantity is included in this tender for civil and electrical items of work. If the tenderer wants to offer any unconditional rebates on their rates, the same should also be offered in the respective components of civil and electrical schedule separately. The contractor shall quote the percentage rates in figures and words accurately so that there is no discrepancy in rates written in figures and words.

3 Time allowed for the execution of work is **12 Months**

4 The contractor(s) shall submit a detailed program of execution in accordance with the master program/milestone within ten days from the date of issue of award letter.

5 Quality of the project is of utmost importance. This shall be adhered to in accordance with the provisions of CPWD specifications and guidelines given in the relevant paras.

6 The contractor (s) shall make his own arrangements for the electricity and water required for the execution of work.

7 **Cement shall be arranged by the contractor himself.**

8 **Steel Reinforcement shall be arranged by the contractor himself.**

9 Contractor has to use specialized agencies for specialized items of works such as water proofing, aluminium works, structural glazing, ACP and other specialized items as mentioned in the tender documents. Only those specialized agencies/firms who have satisfactorily executed works as per following criteria during last seven years are eligible for the specialized works-

(a) Three similar works each costing not less than 40% of estimated cost for concerned sub head.

Or

(b) Two similar works each costing not less than 60% of estimated cost for concerned sub head.

Or

(c) One similar work costing not less than 80% of estimated cost for concerned sub head.

Approval of the specialized agencies for each specialized work shall be obtained from the Engineer-in-Charge within one month of award of work. Even if, such specialized items of work shall be executed by the specialized agencies, the work shall be deemed

to be executed by the tenderer for all purposes and the responsibility of the quality of items of works executed etc. shall continue to be that of the tenderer only.

10 Contractor has to deploy required Plant and machinery on the project. **Minimum number of plant and machinery to be deployed by him is indicated at Page No. 74-75**. In case the contractor fails to deploy the plant and machinery whenever required and as per the direction of the Engineer-in-charge, he (Engineer-in-charge) shall be at a liberty to get the same deployed at the risk and cost of the contractor.

11 The contractor shall submit the running bills in the shape of the computerised MB in pages of A-4 size as per the standard format of department and shall act as per modified clause 6 of CPWD-7.

12 The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time.

GENERAL CONDITIONS OF THE WORK

1. **GENERAL**

1.1 Wherever any reference to any Indian Standard Specifications of BIS/BS/ASTM 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 day previous to the date of receipt of tenders.

2. Unless otherwise specified, the agreement rates for all items of work of the schedule of quantities are for all heights, depths, leads and lifts involved in the execution of work.

3. The contractor shall make his own arrangements for obtaining electric connection for carrying out any maintenance activity and make necessary payment directly to the department concerned.

4. Other agencies working at site will also simultaneously execute the work entrusted to them and the contractor shall offer necessary co-operation wherever required to other agencies.

5. On account of security and others consideration, there could be some restrictions on the working hours, movement of vehicles for transportation of materials. The contractor shall be bound to follow all such restrictions and adjust the programme for execution accordingly.

6. The work shall be carried out in a manner complying in all respects with the requirements of relevant bye laws of the local bodies, labour laws, minimum wages act, workmen compensation act and other statutory laws enacted by Central Govt. as well as State Govt.

7. No accommodation shall be provided to any of the staff engaged by the contractor. The contractor shall also not be allowed to erect any temporary set up for staff in the compound.

8. The engineers who are employed by the contractor under Clause-32 of the agreement shall be present at the site from 9:00 AM to 6:00 PM on all working days and shall carry mobile telephone(s) to enable the Engineer-in-Charge to have easy and quick communication. Message / instructions communicate to the engineers employed by the contractor at site on any social networking platform shall be deemed to have been conveyed to the contractor. Nothing extra shall be paid to the contractor on this account and his quoted rates will be deemed to be inclusive of all the cost involved in this obligation.

9. All materials, T & P consumable and contingent articles required for the work shall be arranged by the contractor. Materials used shall be in following order of preferences:-
   (i) Under the Nomenclature of the item.
   (ii) As per list of preferred makes of materials attached (**Annexure-VII**).
   (iii) CPWD specifications
   (iv) ISI marked.
   (v) Approved by T/S authority CPWD.
   (vi) As per direction of the Engineer-in-Charge.

   Material of specifications richer than the specified materials and compatible to the work may be permitted by Engineer-in-charge without any extra cost at the request of the contractor. However, if market rate of such replaced material is less than market rate of specified material, cost adjustment shall be effected from the contractor's bill. Decision of Engineer-in-charge as to market rates shall be final and binding.

10. Staff employed by the contractor shall be well behaved, Polite & courteous. Any complaint against staff on behavior shall be taken very seriously and such staff shall be replaced by the contractor on demand from Engineer-in-Charge. The decision of Engineer-in-Charge shall be final and binding in this case.

11. The contractor shall make all safety arrangements required for the labour engaged by him at his own cost. All consequences due to negligence or due to lapse of security/safety or otherwise shall remain with the contractor. The department shall not be responsible for any mishap, injury, accident or death of the contractor's staff. No claim in this regard shall be entertained /accepted by the department.

12. Contractor shall be fully responsible for any damages caused to Govt. property by him or his labour in carrying out the work and the same shall be rectified by the contractor at his own cost.

13. GST/Income Tax/other statutory taxes/ levies as applicable shall be recovered from the contractor's bill. The stamp duty if any shall be borne by the contractor.

14. Chases, holes & drilling works etc. shall be done using only electric operated tools.

15. In the case of discrepancy between the Schedule of Quantities, the specifications and/or the Drawings, the following order of preferences shall be observed:-
    (i) Description of Schedule of Quantities
    (ii) Additional specifications and special conditions, if any.
    (iii) Contract clauses of GCC 2023 for Maintenance work as amended/modified up to day previous to the last date of submission of bids / General conditions of contract for Central P.W.D. works 2023 Form.
    (iv) CPWD specifications.
    (v) Architectural drawings.
    (vi) Indian standards specification/BIS.
    (vii) Sound engineering practice or manufacturers' specifications.
    Any references made to any Indian standards specifications shall imply to the latest version of that standard, including such revisions/amendments as issued by the Bureau of Indian standards up to last date of receipt of tenders. The contractor shall keep at his own cost all such publications of relevant Indian standards applicable to the work at site.

16. The contractor shall have to carry out the work according to programme given by the Engineer-in-Charge or his representative. The contractor shall not carry out any work in any building without permission of Engineer-in-Charge. The contractor shall adhere to this programme failing which he shall be wholly responsible. No claim for idle labour on any account shall be entertained. The contractor shall depute his representative daily to the site of work. His name and signature shall be attested by the contractor for record in the department.
    (i) The premises and portions of premises where the work is to be executed on any day shall be got approved from the representative of Engineer-in-Charge at the site of work in writing. No work shall be carried out in any office without the approval of the representative of the Engineer-in-Charge.
    (ii) Any work carried out without the approval of the representative of the Engineer-in-Charge at the site of work shall be liable to be rejected and will not be measured and paid for.

(iii) The paints/other material shall be issued by the Junior Engineer/Assistant Engineer to the contractors after breaking the seal of the containers/packing and quantity to be issued shall be as per the daily requirement at the site. After day's use balance quantity of paints etc., if any left, will be returned by the contractor to the Engineer-in-Charge or his representative. After use the empty container shall have to be returned to the Engineer-in-Charge or his representative and will not de disposed off till the completion of the work.

(iv) The site for the collection and stacking of the material shall be got approved from the Engineer-in-Charge.

(v) Nothing extra shall be paid to the contractor for excess consumption of material.

(vi) The contractors shall quote their rates inclusive of all taxes, cartage, royalties etc, complete.

(vii) The contractor shall prepare one sample of item which shall be got approved from the Engineer-in-Charge. Only on acceptance of sample work, contractor will be allowed to commence the work and sample is to be preserved with the JE-in-Charge of work till the whole work is completed. The quality of entire work should conform to the approved samples.

(viii) The contractor and/or his authorized agent should see the site order book every day and get the compliance noted by the Junior Engineer / Assistant Engineer / Engineer-in-Charge.

(ix) All the malba or rubbish obtained from dismantling or otherwise during the execution of the work shall be brought down through the staircase and shall not be thrown to the ground directly or carried in lift. This shall be carried and stacked properly to the specified common designated place on the same day and site shall be left clear as per the instructions of the Engineer-in-Charge. A compensation of Rs. 1000/- shall be levied from the contractor for each complaint/default/per day.

17. Any damage to the building structure, fitting or any other articles etc. done by the contractor or his workman during the execution of the work shall be made good by the contractor at his own cost.

18. The contractor shall clear the site properly before the completion of the work.

19. The theoretical consumption of materials like, distemper, paint, water proof cement paint etc. shall be computed, as per the consumption co-efficient. In case of variation between the actual and the theoretical calculations action shall be taken as below:-
In case the materials used are less than theoretical requirements the cost for the materials used less shall be recovered form the contractor at the basic rate as given in **D.S.R. 2023** plus carriage plus 1% W.C. plus 15% contractor profit and over heads plus contractor's enhancement/abatement as per the clause 12 of the Agreement. For all excess use of material over the theoretical consumption no extra payment shall be made to the contractor.

20. All required Registers will be arranged by agency itself duly marked in chronological order and the same shall be got issued by Engineer-in-Charge. Nothing extra shall be paid on this account.

21. Staff employed by the Contractor should be well behaved, polite & courteous. The worker will clean the place/site thoroughly before leaving the site while attending the complaints. Any complaint against staff on behavior will be taken seriously and such staff should be removed by the Contractor immediately from the site and arrange replacement for the same failing which the Engineer-in-Charge has to recover as per corresponding conditions in this NIT.

22. Safety of the staff employed will be the responsibility of the Contractor. It shall be the prime duty of the Contractor to provide requisite safety equipments to all the workers and supervisors for their protection. CPWD will not be responsible for any mishap, injury/accident or death of the staff. No claim in this regard shall be entertained/ accepted by the department.

23. The Contractor shall have to carry out the work according to programme given by the Executive Engineer/ Assistant Engineer / Junior Engineer-in-Charge. The Contractor shall have to adhere to this programme failing which he shall be wholly responsible for any inconvenience caused to the occupants. No claim for idle labour on any account shall be entertained. The Contractor shall depute his representative daily to the site of work. His name and Signature shall be attested by the Contractor for record in the department.

24. The contractor shall also assist inspection and collection of samples by Engineer-in Charge for testing. The samples of materials/ items of work required for testing by Engineer-in Charge or his representative shall be provided free of charge by the contractor. The cost incurred in collection of samples and its packing and transportation to the approved lab/field laboratory shall be borne by the contractor. The test outside field laboratory shall be got done from the laboratory approved by Engineer-in-Charge. The cost of test shall be borne by the contractor for failed samples.

25. Cost of scaffoldings (as per specifications, wherever required to executive the work) shall be deemed to be included in rates quoted by agency. Nothing shall be paid on this account.

MATERIAL AND QUALITY ASSURANCE

1. The contractor shall ensure quality control measures on different aspects of construction including materials, workmanship and correct construction methodologies to be adopted. He shall have to submit quality assurance programme within two weeks of the award of work. The quality assurance programme should include method statement for various items of work to be executed along with check lists to enforce quality control.

2. The contractor shall get the source of all other materials, not specified else where in the document, approved from the Engineer-in-Charge. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost. Similarly, the contractor shall submit brand/ make of various materials not specified in the agreement, to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it.

3. The contractor shall submit shop drawings of staging and shuttering arrangement, aluminum work, Steel truss work and other works as desired by Engineer In Charge for his approval before execution. The contractor shall also submit bar bending schedule for approval of Engineer –in – charge before execution.

4. Test Laboratories :

A) Laboratory at site : As per requirement and direction of Engineer-in-Charge.

The contractor shall at his own expense, establish a testing lab at site and provide testing equipment and materials for the field tests mentioned in the list of mandatory tests given in CPWD specifications 2019 Vol. 1 & 2. Nothing extra shall be payable to him on this account.

The representatives of the department shall be at liberty to inspect the testing facilities at site and conduct testing at random in consultation with Engineer in charge. The contractor shall provide all necessary facilities for the purpose. The laboratory shall be equipped, inter alia, with the following equipments:

a) **Balances:**

i) 7 kg to 10 kg capacity, semi-self indicating type – Accuracy 10 gm.

ii) 500 gm capacity, semi-self indicating type Accuracy 1 gm.

iii) Pan Balance- 5 kg Capacity- Accuracy 10 gm.

b) **Ovens-** Electrically operated, thermostatically controlled upto 1100C- Sensitivity 10C.

c) **Sieves:** as per IS: 460

i) IS Sieves – 450 mm internal dia of sizes 100 mm, 80 mm, 63 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm, complete with lid and pan.

ii) IS Sieves – 200 mm internal dia (brass frame) consisting of 2.36 mm, 1.18 mm, 500 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan.

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

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

f) Equipment for concrete testing

i) Concrete cube moulds 15x15x15cm. 18Nos.

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

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

iv) Standard Vibration table for cubes 1 No

v) Dial gauges 25 mm travel- 0.01 mm/division Least count- 1 No.

vi) Compression testing machine of 100 tonne capacity. 1 No.

vii) Construction water testing kits 1 No.

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

B) Other Laboratories :

B1 The contractor shall arrange carrying out all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge and shall bear all charges in connection therewith including charges for testing for all materials which shall be borne by the contractor.

C) Sampling of Materials:

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

C2 The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge.

C3 BIS marked materials except otherwise specified shall 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/materials. Wherever BIS marked materials are brought to the site of work, the contractor shall if required, by the Engineer-in-Charge furnish manufacturers test certificate to establish that the material produced by the contractor for incorporation in the work satisfies the provisions of BIS codes relevant to the material and/or the work done.

C4 The contractor shall procure all the materials in advance so that there is sufficient time to testing and approving of the materials and clearance of the same before use in work.

C5 All materials brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorized representative of the work on receipt of the same at site before use.

C6 The contractor shall be fully responsible for the safe custody of the materials issued to him even if the materials are in double lock and key system.

C7 The Stone aggregate/stone, sand shall be brought from any quarries subjected to the said materials confirm CPWD specifications.

5 The day to day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the Engineer-in-Charge of work and which shall be duly signed by the contractor or his authorised representative.

6 The contractor shall render all help and assistance in documenting the total sequence of this project by way of photography, slides, audio-video recording etc. Nothing extra shall be payable to the contractor on this account. However cost of photographs, slides, audio/videography etc shall be born by the department.

7 The contractor shall be fully responsible for the safe custody of materials brought by him issued to him even though the materials are under double lock key system.

8 Separate cement registers showing the receipt of the OPC and PPC shall be maintained at site. The contractor shall construct separate godowns for storage of OPC & PPC at site and nothing extra on this account shall be payable.

9 Cement issued shall be for consumption at site only. No cement for factory made items and those not manufactured at site shall be issued.

10 In case there is any discrepancy in frequency of testing as given in the list of mandatory test and that in the individual sub-head of work as per CPWD specification 2019 Vol. 1 & 2 the higher of the two frequencies of testing shall be adopted.

11 Maintenance of Works Register:

(i) All the register of tests to be carried out at construction site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff.

(ii) The test registers to be issued to the contractor are :

a) Materials at site account register.

b) Cement register.

c) Master test registers.

d) Cube test register.

e) Paint register.

f) Drawing register.

(iii) All the entries in the register will be made by the designated engineering staff of the contractor and same should be regularly reviewed by JE/AE/EE.

(iv) Contractor shall be responsible for safe custody of all the test registers.

(v) Submission of copy of all test registers, material at site register along with each alternate running account bill and final bill shall be mandatory. These registers should be duly checked by AE(P) in division office.

ADDITIONAL CONDITIONS FOR CEMENT

1 The contractor shall procure PPC conforming to IS: 1489 (Part 1) as required in the work from reputed manufacturers of cement such as ACC, Ultratech, Shree Cement, JK Cement, Century Cement, Prism Cement or from any other reputed cement manufacturer having a production capacity not less than 1 million tons per annum as approved by Chief Engineer / ADG, CPWD, Lucknow.

2 The supply of cement shall be taken in 50 kg. bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-charge and got tested in accordance with provisions of relevant BIS codes. In case, the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected, and it 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.

3 The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer- in- charge. The cement godown of the capacity to store a minimum of 2000 bags of cement or decided by NIT approving authority, in case less than 100 MT cement is required for work, shall be constructed by the contractor at site of work for which no extra payment shall be made.

4 Double lock provision shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer-in-Charge or his authorized representative and the keys of the other lock shall remain with the contractor. The contractor shall be responsible for the watch and ward and safety of the cement godown. The contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge at any time.

5 The cement shall be got tested by the Engineer-in-charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge, the cement required for testing including its transportation cost to testing laboratories. **All expenditure to be incurred for testing of samples e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.**

6 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause 38 of the contract and shall be governed by conditions laid therein. In case, the cement consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made after ensuring structural soundness and stability on the basis of testing. In case of excess consumption, no adjustment shall be made.

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

8 The damaged cement shall be removed from the site immediately by the agency on receipt of a notice in writing from the Engineer-in-charge. If he does not do so within 3 days of receipt of such notice, the Engineer-in-charge shall get it removed at the cost of the contractor.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

SPECIAL CONDITION FOR STEEL REINFORCEMENT BARS

1. The contractor shall procure TMT bars /Low Alloy Steel of Fe 500 D (BAR SET-I) or more grade from steel producers such as **SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd and JSW Steel Ltd** or their authorized dealers**.**

   1.1 TMT bars (BAR SET-I) shall meet the provisions of IS 1786 (latest version) (Indian Standard specifications for high strength deformed steel bars and wires for concrete reinforcement) pertaining to Fe 500 D (BAR SET-I) or more grade of steel. (DG, CPWD, New Delhi OM vide No. CSQ/SE(TAS)/Steel/2024/262-H dated 14-08-2024 may be referred copy attached)

2. The contractor shall have to obtain manufactures certificate stating the process of manufacture, chemical composition and test sheet giving results of each mechanical test applicable to the materials and submit and furnish to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work. Each test certificate shall indicate the number of cast to which it applies, corresponding to the number or identification mark to be found on the material.

3. Steel bars brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorized representative of the work on receipt of the same at site before use. Samples of each confinement shall be taken and got tested by the Engineer-in-charge for chemical composition and physical properties (including bend and re-bend test) as per the provisions in this regard in the relevant BIS codes from any Govt. or approved laboratory. 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.

4. The steel reinforcement shall be brought to the site in bulk supply of 30 tonnes or more or as directed by the Engineer-in-charge.

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

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

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

7. **All the expenditure to be incurred for testing of samples, e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.**

8. If the quantity of steel actually used in the work is found to be more than the theoretical quantity of steel including authorised variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that at any stage or after the completion of the work the quantity of steel used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in clause 38). The cost of quantity of steel so less used shall be recovered from the contractor at rate as specified in schedule 'F'. Decision of the Engineer-in-Charge in regard to theoretical quantity of steel which should have been actually used and recovery of the rate specified shall be final and binding on the contractor. In case the contractor brings surplus quantity of steel the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the Engineer-in-Charge.

9. The standard sectional weights referred to as in Table 5.4 under para 5.3.4 in CPWD specifications for works 2019 Vol. 1 will be considered for conversion of length of various sizes of MS bars, Tor steel bars and TMT bars into standard weight.

10. Records of actual sectional weight shall also be kept dia-wise & lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each

diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as derived actual weight.

11. If the derived weight as in para 10 above is lesser than the standard weight as in para 9 above, the derived actual weight shall be taken for payment.

If the derived actual weight is found more than the standard weight then the standard weight as worked out in para 9 above shall be taken for payment. In such case nothing extra shall be paid for the difference between the derived actual weight and the standard weight.

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

13. Tolerances on Nominal Mass (individual sample) shall be as under:-

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

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E-9156762

No. CSQ/SE(TAS)/Steel/2024/ 262-80 Dated: 14/08/2024

OFFICE MEMORANDUM

Subject:- Guidelines for use of TMT steel /Low Alloy Steel reinforcement Bars in CPWD worksand enlistment of the steel manufactures in respect of TMT steel /Low Alloy Steel reinforcement Bars in CPWD.

1. The Ministry of Steel, through notification dated 12.05.2016 and order dated 9.8.2016, abolished classification of steel producers as Integrated steel producers, primary steel producers, secondary steel producers, main producers, major producers or others as well as on the basis of process route of steel manufacturing in India.
2. The Ministry of Steel, vide Circular No. 4(13)/2016-SD(I) dated 14.12.2016, reiterated their Notification dated 12.05.2016. They further issued an order dated
09.08.2016, asking the users to ascertain the quality of the steel products, to be procured, as per relevant BIS standards.
3. Para 27.2 of Works Manual 2014 was modified through OM No. DG/MAN/382 dated 06.02.2019. In this OM, under the heading "Special Condition of Steel reinforcement bars", eligibility criteria and other technical parameters were set for steel manufactures. In the eligibility criteria, incorporation details of the company, various licences, certifications, in house testing facility at plant, and refining technologies used for manufacturing of steel and TMT bars (like BF-BOF route, COREX-BOF Route, DRI-EAF route) were cited. Those manufacturers, who met the aforesaid eligibility criteria, could be included in the preferred make list of Notice Inviting Tenders (NITs) of CPWD works.
4. However, CPWD Works Manual 2014 was replaced by CPWD Works Manual 2019 and came into force with effect from 07.03.2019. In CPWD Works manual 2019, para 4.10.1 deals with use of steel and cement in works and states that "*Special conditions shall be incorporated by the NIT approving authority keeping in view the guidelines issued by the Directorate from time to time in this regard which are available on CPWD website*".
5. Since no Criteria /guidelines were available for approval of TMT bars manufacturer after release of the CPWD works manual 2019, an Office Memorandum No. CE(CSQ /SE(TAS) /EE(TAD) /Steel/ 2019/ 497-H dated 27.12.2019 was issued. This OM specified that (i) only ISI marked TMT bars of various grades shall be procured for use in CPWD works, (ii) SDG/ADG shall approve the steel manufacturers based on eligibility criteria and other technical parameters as per OM No. DG/MAN/382 dated 06.02.2019
6. The OM 497-H dated 27.12.2019 was withdrawn and modified guidelines for use of reinforcement bars in structures was issued vide OM No. 50-H dated 17.02.2021. The use of corrosion resistant steel (CRS) reinforcement bars in structures was also mandated vide OM No. 50-H dated 17.02.2021. Further,

contd..(2)

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

clarification regarding corrosion resistant steel was issued vide OM No. 257-H dated 23.06.2022.

7. The single bench of Hon'ble High Court at Calcutta in the case of SRMB Srijan Private Limited & others V/s Union Of India & Others (W.P.A 9990 of 2020) SRMB Srijan Private Limited & others Vs. Union of India & others With (W.P.A 24267 of 2019) has quashed the modified Clause 27.2 of the CPWD Works Manual of 2014,para 4.10.1 of the CPWD Works Manual of 2019, and consequential Memorandums issued by the CPWD and directed to implement the Notification of the Ministry of Steel, Government of India dated May 12, 2016, the Order dated August 9, 2016 and the reminders of the said Ministry dated December 14, 2016 and February 7, 2017.
8. Subsequently an appeal was filed in Division Bench (DB) of Hon'ble High court at Calcutta by CPWD. In the said case, Hon'ble High court at Calcutta, passed the judgment dated 15.04.2024. The operative part of this judgement reads as "*Accordingly we find no grounds to interfere with the order passed by the Learned single bench except with regard to the direction issued in paragraph 53 of the impugned order whereby the modified clause 27.2 of the CPWD Works Manual has been quashed and instead of quashing the said modified clause 27.2 we direct the CPWD to appropriately amend their Works Manual to be in consonance with the notification issued by the Ministry of Steel, Govt. of India as done by the notifications referred to above.*"
9. In compliance of the above directions of the Hon'ble High Court at Calcutta, an Expert Committee was constituted by DG CPWD vide OM No. CSQ/SE(TAS)/EE(TAD)/Steel/2024/190-H dated 10.06.2024 for deciding the criteria for the selection of steel manufacturers for CPWD works. The expert committee has conveyed their final recommendation {enclosed as annexure I(d)} vide Minutes of Meeting dated 24th July 2024 and the same has been accepted by DG, CPWD. The brief of these recommendations are as follows:

Steel Bars shall be classified as:

a) Bar Set I, if it complies with the requirements given in the latest version of IS 1786, and additional requirement (e.g. Chemical Composition Requirement for Manganese and Copper, Tempered Martensite (TM) Ring Requirement, Marking Requirement and compliance of the provisions of ISO 9001:2015 and ISO 14001:2004) mentioned in the recommendations.

And

(b) Bar Set II, if it complies with the requirements given in the latest version of IS 1786.

The committee has also recommended use of above mentioned Steel Bar sets considering the importance of quality in construction of public structures in different projects of CPWD, on the basis of (a) earth quake zones, (b) environment conditions (coastline and exposure condition), (c) Structure category, and (d) heights of buildings and structures.

Contd.--3

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

10. Accordingly, it is decided that the reinforcement steel bars produced by plants of SAIL, RINL, TATA, JSW & JSPL which are in wider use in CPWD may be continued to be used as preferred make in the NIT in respect of Bar Set-I mentioned in para no. 9 above and Annexure-1(c). Further, it has also been decided that DG, CPWD may enlist more manufacturer plants for TMT steel/Low Alloy Steel reinforcement Bars on the basis of selection criteria recommended by the Expert Committee. These enlisted manufacturers plants for particular bar set may also be considered for stipulation as preferred make in the NIT depending upon their use.
11. The procedure for enlistment of the steel manufactures in respect of TMT steel /Low Alloy Steel reinforcement Bars in CPWD works is also enclosed herewith as Annexure-I and I (a) to I (f)

This issues with the approval of DG, CPWD.

Encl: As above

(Dinesh Kumar Ujjainia)
Superintending Engineer (TAS)

Copy to (Through CPWD Website):

The SDG (Chennai) / SDG (Chandigarh) / SDG (Kolkata) / SDG (Mumbai) for information please.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I

PROCEDURE FOR ENLISTMENT OF THE STEEL MANUFACTURES IN RESPECT OF TMT STEEL / LOW ALLOY STEEL REINFORCEMENT BARS IN CPWD WORKS.

1. The following procedure shall be adopted for enlistment of the manufacturers, in respect of TMT steel / Low Alloy steel reinforcement bars of different diameter and grades for use in CPWD works.

i. All manufacturers having their manufacturing plants in India are eligible for enlistment in CPWD subject to the condition that they are producing steel bars of different grades conforming to the latest version of IS 1786.

ii. The Thermo Mechanically Treated (TMT) steel / Low Alloy steel reinforcement bars conforming to IS:1786 must be manufactured using iron ore, virgin or processed with necessary refining facilities. The rolling / processing facilities, from iron making to finished steel reinforcement bar, may be owned by the same company or its subsidiary company (ies). In this regard the necessary proof may be submitted along with application.

iii. The eligible manufacturer shall apply **online** to CPWD website portal to **SDG (Chennai, Chandigarh, Kolkata, & Mumbai)** on their letter head along with requisite details in prescribed application **(as per Annexure-I(a)** along with documents **(as per Annexure-I (b).** The manufacturer shall mention name and location of plants to be enlisted for supply of steel reinforcement bar and shall pay enlistment fee of Rs. 1,00,000.00 (Rs. One Lac Only) per plant. The manufacturer is required to pay total enlistment fees to CPWD through e-payment in **Account Number 244189- AE(Cash), CSQ, NirmanBhawan, New Delhias per Annexure-I (f)** and receipts of payment shall be enclosed with the application form.

iv. The enlistment fee, once paid, is non-refundable due to any reason. Therefore, manufacturers are advised to ensure that they fulfil the eligibility requirements and possess all necessary documents for enlistment before payment.

v. The online application submitted along with documents will be scrutinized by the **CE (Works & TLQA) O/oSDG (Chennai,**

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Chandigarh, Kolkata, & Mumbai) and shortcoming (s) or deficiency (ies) in the submitted application, if any, will be communicated to the applicants through online portal. The applicants will be allowed to submit clarifications or information online within a period of one month from the date of intimation of shortcomings.

vi. If the manufacturer fails to submit the required clarifications or information within one month from the date of intimation of shortcomings, the application shall be summarily rejected and no further communication shall be entertained. The enlistment fees shall be forfeited.

vii. All the relevant clarifications and/or information received within the time period shall be considered and if found in order, such manufacturer shall be informed about the dates of plant (s) visit by the team of CPWD officers consisting of **one SE, one EE and one AE (to be nominated by respective SDG)**.

viii. On site verification of documents, submitted at the time of application, will be done by the CPWD team, during the plant(s) visit. Further, the testing of individual bars of particular grade (s), at each plant, shall be carried out in the lab available at plant in presence of CPWD team and representative of manufacturer **(as per Annexure-I(c))**. The entire testing process shall also be video recorded.

ix. CPWD team, at each plant, shall also collect the samples (i.e. one sample consist of three bars) of each diameter of different grades and sealed in presence of manufacturer's representative. The type testing of these samples shall be done in one of the designated lab of National Test House, IITs, NITs and NCCBM in presence of CPWD representatives. The dates of testing of samples in the designated laboratory shall be decided by the manufacturer in consultation with the lab authorities and CPWD team. The entire testing process, including opening of sealed samples, shall be video recorded.

x. After plant visit by the CPWD team, a report along with photographs / video of the plants and results of the tests conducted during visit shall be uploaded on the portal within 5 working days.

xi. The results of the type tests, conducted in the designated lab, shall be uploaded on the portal within 5 working days of receipt of the same.

contd - 3

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

xii. After getting all the test reports, complete case along with documents and recommendation of respective SDG **(Chennai, Chandigarh, Kolkata, & Mumbai)** will be sent to CE, CSQ (Civil),CPWD, NirmanBhawan, New Delhi.

2. A committee comprising of following officers will evaluate the case received from SDG **(Chennai, Chandigarh, Kolkata, & Mumbai)** for the enlistment of steel manufactures' plant for reinforcement bar of different grades on the basis of criteria given in **annexure-I(d)** in CPWD Directorate, NirmanBhawan, New Delhi.

ADG (Tech)	-	Chairman
CE (Project)	-	Member (to be nominated by ADG (Tech)
CE, CSQ (Civil)	-	Member
SE(Design)	-	Member (to be nominated by ADG (Tech)
SE (TAS)	-	Member Secretary

The committee will recommend the steel manufacturers' plant for enlistment or otherwise to DG, CPWD for his approval.

3. The approval of the competent authority shall be intimated to the respective manufacturer in respect of a particular plant for each diameter of different grades of steel under category Bar Set I / Bar Set-II
4. If, no bar diameter of specific grade of steel of the particular plant of a manufacturer is found suitable, then he will be intimated accordingly. The manufacturer may apply afresh next time when applications are re-invited for enlistment. In case of rejection of application, the decision of the CPWD shall be final and binding on the applicants.
5. **Validity of Enlistment**: The enlistment of manufacturer's plant for particular bar diameter and grade of steel shall be valid for a period of 3 (three) years from the date of issue of enlistment order. The enlistment shall be open to review by the enlisting authority i.e. Director General, CPWD at any time. In case any adverse report is received against the manufacturer, the enlistment is liable to be suspended/cancelled/or manufacturer can be black listed for future enlistment in CPWD or any other action as deemed fit (as per **Annexure-I(e)**).

Contd .. 4

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I(a)

Application for Enlistment OF THE STEEL MANUFACTURES IN RESPECT OF TMT STEEL / LOW ALLOY STEEL REINFORCEMENT BARS and re-enlistment (Supporting documents annexed with the application form should be uploaded as per Annexure-I(b))

1. (a)Name of the applicant ... .

(b)Status of entity (Limited Liability Partnership/Ltd. Company).....

2. Address

(a) Registered Office.....

(b) Head Office (if different from Registered office).....

3 Contact Details

(a) Name of contact person and Designation.....

(b) Telephone Number.....

(c) Mobile Number .....

(d) Email Id.....

(e) Website URL (If any) .....

4 Detail of Plant (s) for which Enlistment applied:

i. (a) Name of Plant.....

(b) Location.....

ii. (a) Name of Plant.....

(b) Location.....

5. Enlistment fee(s) detail (Fees Rs. 1,00,000.00 per Plant) :

(a) Transactions Reference Number .....

(b) Transaction Date.....

(c) Amount.....

6. Certificates (Strike out whichever is not applicable)

a. I/We (including all partners) certify that I/we have read the Rules for Enlistment of steel manufacturer in CPWD as amended upto date and shall abide by them.

— 4 —

Contd..5

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

b. I/We certify that I/we are not enlisted and will not get myself / ourselves registered as steel manufacturer in the Department under more than one name.

c. I/We have neither employed nor shall we employ any person within one year of his retirement from the Government except with the prior permission of the Government.

d. I/We will not make changes in the owner ship of the company without prior intimation to department.

e. I/We have not declared or is in the process of being declared bankrupt, insolvent, wound up, dissolved or partitioned.

f. I/We have not been removed/suspended/blacklisted/debarred/restrained from the business by any central /state government department/PSUs.

I/We certify that the information given above is true to the best of my/our knowledge. I/We understand that if any information is found incorrect, our enlistment is liable to be cancelled and I may be blacklisted / suspended / debarred for future enlistment in CPWD.

Place :

Signature of applicant

Date:

(Authorized Signatory)

contd ... 6

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I (b)

A. Documents required to be submitted with application:

1. Documents regarding Ownership / Promoters of the manufacturing plant, its head office address, location and address of steel manufacturing facility.
2. If any subsidiary company(ies) exists, then documents regarding Ownership / Promoter ship of the subsidiary company, Subsidiary company's address and its relation with main company, location and address of manufacturing units of subsidiary company.
3. Copies of Certificate of Incorporation & Memorandum of Article of Association of Main Company.
4. Approval/ enlistment of manufacturer company by CPWD (in past), or any other Central/State Government departments/PSUs for use of steel reinforcement bars.
5. Document and Production process flow diagram / chart of steel making for production of TMT and Low alloy steel (Corrosion Resistant Steel) Reinforcement bars for Fe 415D, Fe 500D,and Fe 550D of bar sizes 8 mm to 45 mm dia.
6. Document related to Quality Assurance Plan adopted in manufacturing of steel and calibration record of measuring and testing equipments.
7. Authenticated copies of BIS certificate for billets (IS 2830 : 2012) & BIS certificate for TMT bars (IS 1786 :2008) (with up to date Amendment)
8. Copy of ISO-9001:2008 (Quality Management System), Quality Management System, ISO-14001:2004 (Environment Management System).
9. The CO2 emission per kg of steel production.
10. Whether manufacturer is blacklisted/suspended/debarred/restrained from business by any Central / State Government Department or PSU for poor quality of reinforcement steel bar (if any) supplied by the company.
11. Test results of bars as per Annexure-I(c).

Contd ···7

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure- I(c)

Testing requirement for individual reinforcement bar diameter of Particular Grade of steel:

Tests required for Fe 415D, Fe500D, Fe550D grade of steel and Low alloy steel reinforcement bars:

A. **FOR BAR SET- I**

1. Tests as per IS 1786 (latest version) and specified therein

1.1 Chemical Properties

Ladle analysis of steel for above grades for maximum percentage of constituents

i. Carbon (C), (ii) Sulphur (S) and (iii)Phosphorous (P) and (iv) Nitrogen and Carbon Equivalent

1.2 Physical Properties

(i) 0.2 percent proof stress / yield stress, minimum, N/mm2.

(ii) Ratio of Tensile Strength (Ts) to Actual Yield Strength (or 0.2 % of yield stress (Ys)) of the test piece N/mm2.

(iii) Elongation, percent, Minimum, on gauge length $5.65\sqrt{A}$, where *A* is the cross-sectional area of the test piece.

(iv) Total elongation at maximum force, percentage, minimum on gauge length $5.65\sqrt{A}$, where A is the cross-sectional area of the test piece.

(v) Bend test and re-bend test.

(vi) The mean area of ribs (in mm2) per unit length (in mm) above the coreof the bar, projected on a plane normal to the axisof the bar.

(vii) Pull-out testing in accordance with IS 2770 (Part 1)

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

2. **Additional requirement**

2.1 Permissible limit for Manganese and Copper as follows:

Constituent	Permissible Limit (% of cast metal quantity)		
	Fe 415 D	**Fe 500 D**	**Fe 550 D**
Manganese (Mn)			
Maximum	1.60	1.60	1.60
Copper (Cu)			
Maximum	0.80	0.80	0.80
Minimum	0.20	0.20	0.20

Notes:

The above composition shall be obtained as per latest version of IS 228

1. Manganese using Periodate Spectrophotometric Method **(Part 12),** and
2. Copper using Thiosulphate Iodide Method (**Part 15)** or Spectrophotometric (Diethyl Dithiocarbonate) Method **(Part 21)**

2.2 Tempered Martensite Ring Test as per Annexure-I (d).

2.3 The process of manufacturing steel shall comply with the provisions of ISO9001: 2015 and ISO14001: 2004.

(B)FOR BAR SET-II

1. The test requirements given in para 1.1 and 1.2 above.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I(d)

1. CRITERIA FOR CLASSIFICATION OF BARS

The steel bars manufactured in India shall be classified as specified hereunder for the purposes of their use in works of CPWD.

1.1 Process of Classification

Steel Bars shall be classified as *Bar Set I* and *Bar Set II*. The bars shall be placed under one of these categories based on *Type Test* (the test performed to select the bars) performed as specified hereunder. These tests to be performed are those specified in the latest version of **IS 1786** published by the Bureau of Indian Standards, and the additional tests mentioned in Para **2** of this document.

The *Type Test* shall be performed at any one of the National Test Houses, IITs, NITs, and NCCBM, subject to:

(a)The test samples being collected from the manufacturing facility by the representative engineer of CPWD,

(b) The availability of the required test facility at the said laboratory, and

(c) The test being witnessed by representative engineer of CPWD.

1.2 Classification of Steel Bars

The bar shall be classified as:

(1) *Bar Set I*, if it complies with the requirements given in the latest version of **IS: 1786**, and those given in Para **2** of this document, and

(2) *Bar Set II*, if it complies with the requirements given in the latest version of **IS 1786**.

2. ADDITIONAL REQUIREMENTS

Four additional requirements as specified hereunder.

2.1 Chemical Composition Requirement

The permissible limits of additional elements shall be as per **Table 1**.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

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Table 1: Permissible limits of additional elements

Constituent	Permissible Limit (% of cast metal quantity)		
	Fe 415 D	Fe 500 D	Fe 550 D
Manganese (Mn)			
Maximum	1.60	1.60	1.60
Copper (Cu)			
Maximum	0.80	0.80	0.80
Minimum	0.20	0.20	0.20

Notes:

The above composition shall be obtained as per latest version of **IS 228**:

(1) Manganese using Periodate Spectrophotometric Method (**Part 12**), and

(2) Copper using Thiosulphate Iodide Method (**Part 15**) or Spectrophotometric (Diethyl Dithiocarbonate) Method (**Part 21**).

2.2 TM Ring Requirement

The following two requirements shall be met with:

(1) Does the *Tempered Martensite(TM) Ring* satisfy the visual analysis as per **Step 1** of **Table 2**; and

(2) The thickness of the TM Ring obtained as per **Step 2** of **Table 2** shall be between 0.07f and 0.15f, where f is the *original nominal diameter* of the bar.

(a) Test Procedure

The following is the procedure:

(1) The test setup to capture the *Cross-Sectional Phase Distribution (CSPD)* of the TMT bars shall be as shown in **Figure 1**.

(2) Steel bars may be cut using handsaw or an abrasive cutter with continuous supply of coolant to limit the temperature of steel, and thereby avoid any transition or changes in *Tempered Martensite(TM)* and *Ferrite-Pearlite (FP)* phases (**Figure 2**). The sharp edges of cut bars should be smoothened using

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

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silicon carbide abrasive sheets. A metal polishing machine can be used to achieve effective smoothening.

(3) The smoothened steel specimen shall be moulded in cold setting epoxy with good surface finish. Setting time of epoxy is about 10-15 minutes.

(4) The moulded specimen surface shall be course polished using abrasive sheets of 80, 150, 220, 320, and 600 grit sizes in sequence. Specimens shall be micro-etched using Nital (5% Nitric acid in alcohol) to capture the CSPD.

(b) Measurements

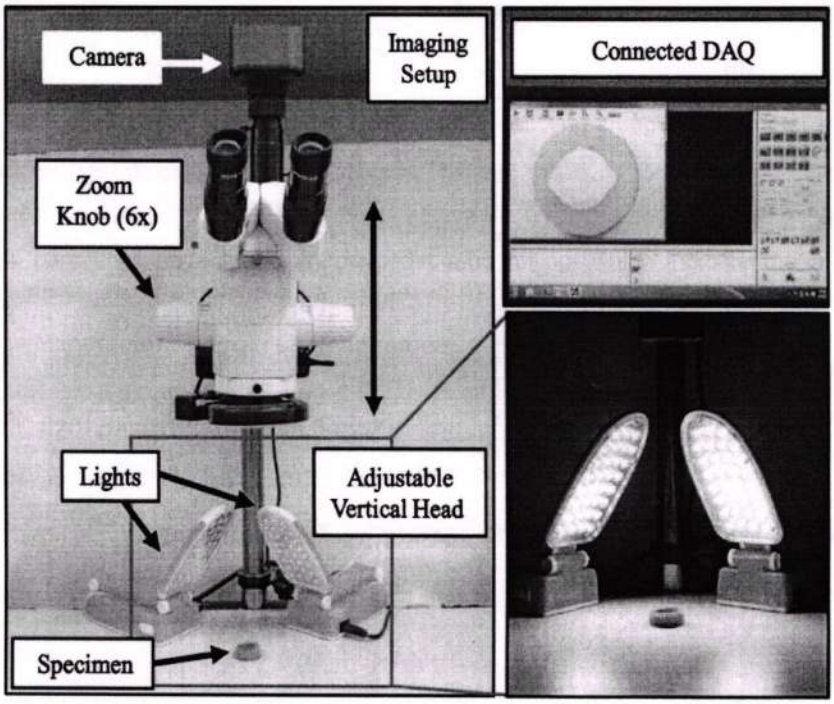
The procedure for obtaining the *CSPD* of the TM Ring along the perimeter shall be as per **Table 2**.

2.3 Marking Requirement

All bars shall have marks introduced during rolling, which indicate the *name of manufacturer* or *brand name*, and *grade of steel*.

2.4 Manufacturing Process Requirement

The process of manufacturing steel shall comply with the provisions of ISO 9001:2015 and ISO 14001:2004.



(a)

— 11 —

contd - 12

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

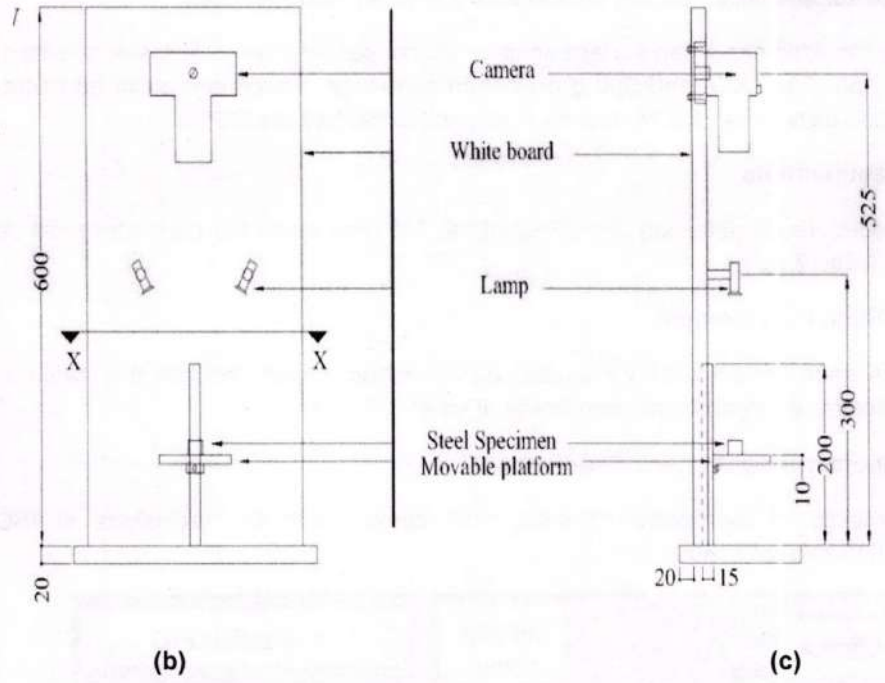


Figure 1: Test setup for CSPD of the TMT bars: (a) Imaging Setup, (b) Schematic Front View (c) Schematic Side View

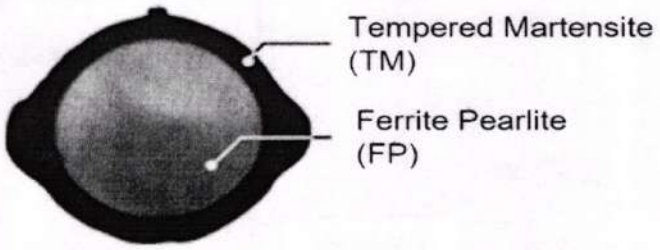


Figure 2: Cross-section of the steel bar showing the TM and FP areas

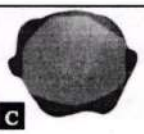
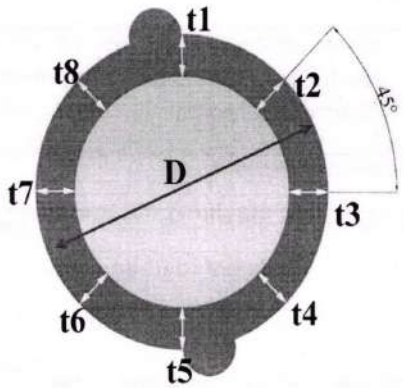
— 12 —

Contd- 13

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Table 2: Method of obtaining CSPD of TM Ring

Step 1: Visual Analysis of etched Cross-Section					
	 A	 B	 C	 D	
	Acceptable	*Not acceptable*	*Not acceptable*	*Not acceptable*	
1.	Is a dark grey peripheral region and light grey core seen as in Case A?			Yes/No	
2.	Does the dark grey peripheral region form a continuous outer ring?			Yes/No	
Step 2: Dimension Analysis of TM-Ring thickness					
3.	Diameter D *(mm)* of the steel bar				
4.	**Geometry**		t_1		
			t_2		
			t_3		
			t_4		
			t_5		
			t_6		
			t_7		
			t_8		
			Measured t_{min} *(mm)*		
			Measured t_{max} *(mm)*		
5.	Is the measured $t_{min} \geq 0.07$ f ?		Yes / No		
	Is the measured $t_{max} < 0.15$ f ?		Yes / No		

— 13 —

Contd --- 14

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

3. GUIDELINES FOR USE OF STEEL BARS IN DIFFERENT PROJECTS

Considering the importance of quality in construction of public structures, the basis for use of bars in different projects of CPWD shall be as given in **Table 3**.

Table 3: Use of *Bar Sets I* and *II* in CPWD Projects

S.No.	*Consideration*	*Bar Set I*	*Bar Set II*
1.	**Earthquake Zones**	All zones	Only *Earthquake Zone II*
2.	**Environment Conditions**		
	(a) Coastline	All conditions	Beyond *10 km* from the coastline of India
	(b) Exposure Conditions	All exposure conditions as per **IS 456** (latest version)	Only *Mild* and *Moderate* Exposure Conditions as per **IS 456** (latest version)
3.	**Structure Category**	All categories	*OnlyNormal Buildings* as per **Table 4** and standalone *Normal Structures* as per **Table** 5.
4.	**Heights of Buildings and Structures**	All heights	Only structures up to 12 m height excluding *staircase headroom* and *liftmachine rooms*

Table 4: List of *Normal Buildings*

Residential or Non-Residential Buildings with occupancy less than 100 persons, *excluding*:

(1) Educational buildings,
(2) Buildings of strategic importance,
(3) Buildings and structures identified by Government of India and State Governments to be critical for governance or Disaster Management,
(4) Hospital buildings,
(5) Buildings that house the control or operations of utilities (for example, water, power, and sewage disposal), and lifeline (for example, communication and transportation facilities) structures,
(6) Buildings related to defense and space applications,
(7) Buildings identified by Government of India, State Governments and UT Administrations to be of *Special Importance*, and
(8) Any other building identified with the approval of DG, CPWD.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Table:5 List of Standalone Normal Structures

Water Tanks and Water Sumps up to 50,000 liters, and Pump Rooms of area less than 20 m2
Septic Tanks, Sewage Treatment Plants, and Effluent Treatment Plants up to 10,000 liters/day
Bridges and Culverts of spans up to 6 m
Earth Retaining Structures up to 4 m
Compound Walls, Entry Gates, and Small Reception Rooms
Storm Water Drains
Cable Trenches
Parking Structures of single storey
Security Cabins and Sentry Post
Any other structure identified with the approval of Technical Sanctioning Authority of CPWD

contd --16

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I(e)

Grounds for Removal/ Suspension/ Blacklisting/ Debarring of manufacturer from CPWD

1. The manufacturer may be removed/suspended/blacklisted/debarred, if any of the following is established:

i. If found to have given false particulars at the time of Application; or
ii. Has indulged in any type of forgery or falsification of records; or
iii. Changes in the owner ship of the company without prior intimation to department.
iv. Declared or is in the process of being declared bankrupt, insolvent, wound up, dissolved or partitioned or
v. Violates the labour rules and regulations or
vi. Is involved in complaints of serious nature received from any source which have been proved; or
vii. Ceases to fulfil eligibility criteria based on which manufacturer's name was approved; or
viii. Is considered as not required to be in list of CPWD enlisted manufacturer for any other reason considered fit by the enlisting authority; or
ix. Received reports from field units of CPWD for supply of sub-standard quality of steel in more than one occasion; or
x. Has been removed/suspended/blacklisted/debarred/restrained from the business by any central /state government department/PSUs.

2. Whenever, any type of complaint mentioned above at serial number (i) to x), is received against a manufacturer. The manufacturer will be served with suitable show cause notice to give reply within a period of 15 days. After considering the reply/non-reply of the Show cause notice and other facts on records, further action will be taken as deemed fit. In case of Removal/ Suspension/ Blacklisting/ Debarring of the manufacturer, the minimum period will not be less than three years from the date of issue of the order. The re-application/application already under consideration for fresh enlistment of such manufacturer shall not be processed till the period of Removal/ Suspension/ Blacklisting/ Debarring is over. The manufacturer has to apply afresh for enlistment after period of Removal/ Suspension/ Blacklisting/ Debarring is over.

Contd--17

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-I (f)

Procedure for online payment of enlistment fee

1. Log on to home page of NTR portal on https://bharatkosh.gov.in.
2. Go to "Quick Payment" link on the home page.
3. Select the Ministry/Department "030-Housing and Urban Affairs" from the drop-down menu.
4. Select the purpose as "Enlistment fee from contractor" from the drop-down menu.
5. Click NEXT and Select the DDO as" 244189-AE(CASH),CSQ, NIRMAN BHAWAN, NEW DELHI" from the drop-down menu.
6. Enter the amount of enlistment fee(s) in the amount window.
7. Under Remarks write "enlistment fee for enlistment of steel manufacturer for the plants (i)…., (ii)… ,(iii)…., ".
8. After filling all the mandatory fields in "Depositor's detail", click" Next".
9. Confirm the information entered in the preview and click the "Confirm" button.
10. After confirmation, the portal will open the Payment Gateway.
11. Make payment using the Payment Gateway and download the system generated electronic receipt.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction..…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

PARTICULAR SPECIFICATION

1. EARTH WORK

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

2. RCC WORK

The work shall be done as per CPWD specifications.

2.1 If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorised variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in clause 38) the cost of quantity of cement so less used shall be recovered from the contractor at the rate as specified in schedule 'F'. Decision of the Engineer-in-Charge in regard to the quantity of cement which should have been actually used as per the schedule and recovery at the rate specified shall be final and binding on the contractor.

2.2 For non-scheduled items, the decision of the Superintending/Chief Engineer regarding theoretical quantity of the cement, which should have been actually used shall be final and binding on the contractor.

2.3 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.

2.4 In case the contractor brings surplus quantity of cement the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the Engineer-in-Charge.

2.5 Cement register for the cement shall be maintained at site.

Cement bags shall be stored in separate godowns to be constructed by the contractor at his own cost as per sketch (which is only indicative and actual size will depend on the site requirements) given in CPWD specifications with weather proof roofs and walls. Each godown shall be provided with a single shutter door with two locks. The key of one lock shall remain with Engineer-in-charge or his authorized representative and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is issued from the godown according to the daily requirements with the knowledge of both parties and proper account for the same is maintained in the standard proforma.

PROFORMA FOR THE CEMENT REGISTER PARTICULARS OF RECEIPT

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

PARTICULARS OF ISSUE

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

2.6 DESIGN MIX CONCRETE:

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

2.6.1 Coarse aggregate: As per CPWD Specifications

2.6.2 Fine Aggregate: As per CPWD Specifications.

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

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

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

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

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

(i) IIT- BHU, Roorkee

(ii) IET- Lucknow

(iii) HBTI- Kanpur

(iv) MNNIT- Allahabad

(v) KNIT- Sultanpur

(vi) Approved Lab/Govt. Engineering Institutions as directed by the Engineer-in-charge.

(vii) MMM Engineering College, Gorakhpur (UP)

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

2.6.8 The contractor shall submit the mix design report from any of above approved laboratory for approval of Engineer-in-Charge with in 30 days from the date of issue of letter of acceptance of the tender. No concreting shall be done until the mix design is approved by

the Engineer-in-charge. In case of white fulfil document and the likely use of admixtures in concrete with PPC/white fulfil document the contractor shall design and test the concrete mix by using trial mixes with white cement and/or admixtures also for which nothing extra shall be payable.

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

2.7 APPROVAL OF DESIGN MIX

The mix design for a specified grade of concrete shall be done for a target mean compressive strength Tck=Fck+1.65 s.

Where Fck = Characteristic compressive strength of 28 days

s = Standard deviation which depends on degree of quality control

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

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

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

2.8 All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor.

2.9 The batching plant shall conform to IS:4925. It shall have the facilities of presetting the quantity to be weighed with automatic cutoff when the same is achieved. Concreting at places may have to be resorted to through concrete pump for which nothing extra shall be paid.

2.10 All other operations in concreting work like Mixing, Slump, Laying Placing of concrete, compaction curing etc. not mentioned in this particular specification for Design Mix of concrete shall be as per CPWD specification.

2.11 WORK STRENGTH TEST

TEST SPECIMEN

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

TEST RESULTS OF SAMPLE

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

Lot size

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

Quantity of concrete in the work cubic metre per day	Number of samples.
1-10	1
11-30	2
31-60	3
61-100	4
101 & above	4 + one additional sample for additional 50 cubic metre or part thereof.

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

2.12 STANDARDS OF ACCEPTANCE- As per CPWD specifications/IS 456 Code

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

2.14 Only MS centering/shuttering and scaffolding material unless & otherwise specified shall be used for all RCC. Work to give an even finish of concrete surface. However marine ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor on approval by the Engineer-in-Charge.

2.15 Necessary arrangements shall be made for field tests and all required equipment's shall be arrange by establishing field lab by the Agency for mandatory tests of the materials as specified in CPWD specifications or as per direction of Engineer-in-Charge. No extra payment shall be paid on this account.

3. READY MIX CONCRETE (RMC)/BATCH MIX CONCRETE FROM RMC PRODUCER

The contractor shall arrange Ready Mix Concrete (RMC) from the approved RMC producing plants as given in the list of preferred make.

The contractor shall, within a period of 15 days of award of the work, submit text of MOU proposed to be entered between purchaser (the contractor) and supplier (RMC producer) to

the Engineer-in-Charge for his approval. The contractor shall draw the MOU with approved RMC producer and submit to the Engineer-in-Charge within a week of such approval. The contractor will not be allowed to use ready mix concrete without completion of above stated formalities.

Notwithstanding the approval granted by the Engineer-in-Charge in aforesaid manner or provisions in CPWD specifications 2019, the contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc.

The Engineer-in-Charge will reserve right to inspect at any stage and reject the concrete if he is not satisfied about quality of product at the user's end.

The Engineer-in-Charge reserves 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, recording of test result and declaring the materials fit or unfit for use in production of mix.

(ii) Calibration check of the RMC plant.

(iii) Weight and quantity check on the ingredients, water and admixture added for batch mixing.

(iv) Time of mixing of concrete.

(v) Testing of fresh concrete, recording of results and declaring the mix fit or unfit for use. This will include continuous control on the workability during production and taking corrective action, if required.

(vi) 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 the Engineer-in-Charge and/or his authorized representative at RMC plant.

(vii) The contractor shall arrange for sending an SMS on the mobile No. of authorized representative of Engineer-in-Charge as soon as the RMC is dispatched from the plant, giving details such as time of dispatched, grade of concrete, tipper registration number etc.

The contractor should therefore draw MOU/agreement with RMC producer very carefully keeping in view all terms and conditions/specifications forming part of this document.

All required relevant records of RMC shall be made available to the Engineer-in- Charge or his authorized representative. The Engineer-in-Charge shall as required, specify guidelines & additional procedures for quality control & other parameters in respect of materials, production & transportation of concrete mix which shall be binding on the contractor & the RMC plant. Only concrete as approved in design mix by the Engineer-in-Charge shall be produced in RMC plant and transported to the site.

3.1 QUALITY CONTROL OF READY MIXED CONCRETE

It shall be the responsibility of the contractor to ensure that 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

RMC producer shall ensure that all the materials purchased and used in the production of concrete confirm to the stipulation of the relevant standards and the requirements of the

concrete mix design and quality control procedures. This shall be accomplished by visual checks, sampling and testing, certification from material supplier and information/date from materials supplier. Necessary equipment for the testing of all materials shall be provided and maintained in calibrated condition at the plant by the RMC producer.

(ii) Control of material storage

Adequate and effective storage arrangement shall be provided by RMC producer at RMC plant for reliable transfer and feed systems, drainage of aggregate, prevention of freezing or excessive solar heating of aggregate, prevention from contamination etc.

(iii) Record of mix design and mix design modification

RMC producer shall ensure that record of mix design and mix design modification is readily available in his computer at RMC plant for inspection of Engineer-in-Charge or his authorized representative at any time. Any modification in mix design shall be done only after the approval of the Engineer-in-Charge.

(iv) Transfer and weighing equipment

RMC producer shall ensure that a documented calibration procedure is in place. Proper calibration records shall be made available indicating date of next calibration due & corrective action taken. RMC producer shall ensure additional calibration checks whenever required by the Engineer-in-Charge in writing to contractor. RMC producer shall also maintain a daily production record including details of customers to whom RMC was supplied including details of mixes supplied. Record shall also be maintained of materials used for each 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, admixture and water being measured.

(v) Maintenance of Plant, Truck Mixers and Pumps

Plant, Truck Mixers and Pumps should be well maintained so as to not hamper any operation of production, transportation and placement of concrete.

(vi) Production of concrete at RMC producing plant

(a) Weighing (correct reading of batch date and accurate weighing):-For each load, printed or graphical records shall be made of the weights of the materials batched, the estimated slumps, the total amount of water added to the load, the delivery ticket numbers for that load and the time of loading the concrete into the truck.

(b) Adequate testing equipments at the plant including equipment for measuring surface moisture content of aggregates shall be provided by the RMC producer.

(c) Making corresponding adjustments at the plant automatically to batched quantities to allow for observed measured or reported changes in materials or concrete qualities.

(d) Sampling of concrete, testing, monitoring of results.

(e) Diagnosis and correction of faults identified from observation/complaints.

(f) Control of designed and the prescribed mixes: a quality control system shall be operated to control the strength of designed mixes to the required levels. The system shall include continuous analysis of results from cube tests.

(vii) 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. Noting extra shall be payable on this account.

(viii) The Engineer-in-Charge reserves the right to approve RMC producing plants not mentioned in the list of approved RMC plants if they fulfill all the necessary conditions.

(ix) In case of rejection of concrete for which cubes have failed to achieve the requirement of acceptance criteria as per the CPWD specification, the work done using that RMC shall be rejected and the work shall be redone at the cost of the contractor, however, the Engineer-in-Charge may order for additional tests (like ultrasonic pulse velocity and rebound hammer test etc.) to be carried out at the cost of contractor to ascertain, if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The contractor shall take remedial measures necessary to retain the structure as approved by the Engineer-in-Charge without any extra cost. However, for payment, the basis of rate payable to contractor shall be governed by the 28 days cube test result and reduced rates shall be regulated in accordance with para

5.4.10.5 D (D-3) of CPWD specifications 2019.

Laying of RMC concrete-All ready mixed designed concrete shall be laid with the help of concrete pump of adequate capacity.

3.2 Transportation, placing and Compaction of Concrete

Mixed concrete from the RMC shall be transported to the point of placement by transit mixers and placed in position through concrete pumps and/or steel closed bottom buckets capable of carrying minimum 0.6 cum concrete is proposed to be transported by transit mixer, the mixing speed shall not be less than 4 rev/min. of the drum nor greater than a speed resulting in a peripheral velocity of the drum 70 m/minutes at its largest diameter. The agitating speed for the agitator shall neither be less than 2 rev/min nor more than 6rev/min of the drum. The numbers of revolution for a uniform mix, after all ingredients, have been charged into the drum unless tempering water is added, all rotation after 100 revolutions shall be at agitating speed of 2 to 6 rev/min and the number of such rotations shall not exceed 250. The general construction of transit mixer and other requirement shall conform to IS: 5892.

4 PRE-CAST RCC WORK

4.1 Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks, flats etc. and forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from Engineer-in-Charge before taking up the work.

4.2 Pre-cast units shall be clearly marked to indicate the top of member and its locations.

4.3 Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.

5 SANITARY INSTALLATIONS, WATER SUPPLY AND DRAINAGE

The work of water supply and sanitary installations shall be got executed by the agency as approved by Engineer-in-Charge.

(i) The entire plumbing drawing and sanitary installation drawing/ details shall be submitted by the contractor and got approved by the Engineer-in-Charge before the execution.

(ii) The entire responsibility for the quality of work will however rest with the building contractor only.

The work of water supply, internal sanitary installations and drainage etc. shall be carried out as per the bylaws of the Municipal Corporation or any other local body and the contractor shall produce necessary completion certificates from such authority after completion of work.

All water tanks, taps, sanitary, water supply and drainage pipes fittings and accessories etc. shall conform to the bylaws and specifications of the Municipal Body/Corporation where CPWD specifications are not available.

The contractor shall engage licensed plumbers for the work and the materials (fixtures/fittings) tested by the local Municipal Body/Corporation wherever required at his own cost. Nothing extra shall be paid/reimbursed for the same.

The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.

The work in general shall be carried out as per CPWD specifications. Rate includes all materials, labour and all the operations mentioned in the respective items unless and otherwise specifically mentioned.

The contractor shall give a satisfactory performance test of the entire installation (s) before the work is finally accepted and nothing extra shall be payable to the contractor on this account.

The contractor shall be responsible for all the protection of sanitary, water supply fittings and fixtures against pilferage and breakage during the period of installation until the completion / handing over of the work.

The contractor shall submit completion plans for water supply internal sanitary installations and building drainage work within thirty days of the date of completion. These plans are to be submitted on drawings prepared preferably through computers (1 original copy + 3 photocopies) on suitable scales to show the general arrangement and desired details.

6. WATER PROOFING TREATMENT

The contractor shall associate himself with the specialized firm, to be approved by the Engineer-in-charge in writing, for water proofing treatment for basement/lower ground floor, underground tank and on roofs. A Noterizied Guarantee Bond on stamp paper of Rs. 100/- should be submitted in the prescribed proforma attached with tender document shall be given by the specialized firm, for a period of 10 years from the date after the maintenance period prescribed in the contract, which shall be counter signed by the contractor as token of overall responsibility. In addition 10% (ten percent) of the cost of water proofing items shall be retained as guarantee to watch the performance of the work done. However half of this retained amount will be released after five years, if the performance of the work done is found satisfactory. If however any defect is noticed during the guarantee period, it shall be rectified by the contractor within seven days of intimation. In case it is not attended to, the same will be got done by another agency at the risk and cost of the contractor. This guarantee deposit can however be released in full if a

bank guarantee of equivalent amount for 10 years is produced and deposited with the department by the contractor.

7. Water Supply & Sanitary Installation:

A Notarized Guarantee Bond on stamp paper of Rs. 100/- should be submitted by the contractor in the prescribed proforma attached with tender document for performance of water supply & sanitary installation work. In addition, 5% (Five percent) of the cost of water supply & sanitary installation items shall be retained as guarantee to watch the performance of the work done, which shall be released after 02 (Two) year to be reckoned from the date, after the expiry of maintenance period prescribed in the contract, if the performance of the work done is found satisfactory.

SPECIAL CONDITIONS

1. The contractor shall not store/dump construction material or debris on metalled road.
2. The contractor shall get prior approval from Engineer-in-Charge for the area, where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic/inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
3. The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and/or other similar material to ensure that no construction material dust fly outside the plot area.
4. The contractor shall ensure that all the trucks or vehicles of any kind, which are used for construction purposes/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precautions that the vehicle 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.
5. The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
6. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relatable to dust emission.
7. The contractor shall ensure that C&D waste is transported to the C&D waste site only and due record shall be maintained by the contractor.
8. The contractor shall compulsory use of jet in grinding and stone cutting.
9. The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.
10. The contractor shall carry out on-Road-Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.
11. The contractor shall ensure that the DG sets comply emission norms notified by MoEF.
12. The contractor shall use vehicles having Pollution under Control Certificate. The emissions can be reduced, by a large extent by reducing the speed of a vehicle to 20 kmph. Speed bumps shall be used to ensure speed reduction. In cases, where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.
13. The contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.

14. No extra payment shall be done for leveling course, if required any, to match finishied level of floorings of different materials and thickness as per direction of Engineer-in-Charge.

15. During the execution of work, the finished items i/c tile works, granite work, marble work, kota stone and all other items shall be protected from damages/scratches/broken/discolour etc. by using suitable materials as per direction of Engineer-in-Charge till the completion/handing over of building to user department.

16. No extra payment will be made for operation/activity mentioned at Sl. No. 1 to 15 above.

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

Sl. No.	Name of Equipment	Numbers
1	Excavators (various sizes)	As per requirement of work and direction of Engineer-in-Charge.
	Equipment for hoisting & lifting	
1	Tower Crane	
	Equipment for Concrete work	
1	Fully -Automatic batching plant capacity of 20 cum per hours or as per direction of Engineer-in-Charge	
2	Concrete pump (Desirable)	
3	Concrete Transit Mixer	
4	Concrete mixer (diesel)	
5	Concrete mixer (electrical)	
6	Needle vibrator (electrical)	
7	Needle vibrator (petrol)	
8	Surface vibrator	
	Equipment for Building work	
1	Bar bending Machine	
2	Bar cutting machine	
3	Drilling machine	
4	Wall grooving machine for chase cutting	
5	Welding machine i/c transformer	
6	Rig machine	
7	Cube testing machines	
8	M.S. pipes — As per requirement or as directed by Engineer-in- Charge	
9	Steel shuttering	
10	Steel scaffolding	
11	Grinding/polishing machines	
	Equipment for transportation	
1	Tippers	
2	Trucks	
	Pneumatic equipment	
1	Air compressors (diesel)	

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

	Dewatering equipment	
1	Pump (diesel)	
2	Pump (electric) (Desirable)	
	Power equipment	
1	Diesel Generator (minimum 200 KVA)	

Note: 1. The above list is only indicative and not exhaustive. The Bidder may be required to deploy more T&P as per requirement of work.

2. All the above plants & equipments are to be deployed as and when required or directed by Engineer-in-Charge.

Milestones of the Contract

Sl. No.	Description of mile stone	Period for completion from date of start in months	Withheld amount for non achievement of mile stone.
1	20% of tendered amount.	03 Months	1.25% of the accepted tendered value.
2	40% of tendered amount.	06 Months	1.25% of the accepted tendered value.
3	70% of tendered amount.	09 Months	1.25% of the accepted tendered value
4	100% of tendered amount.	12 Months	1.25% of the accepted tendered value.

Recovery for non achievement of sample item

Sl. No.	Sample item	Period for completion	Recovery amount (Rs.)
1	**Completion of sample toilet**	60 Days after casting of ground floor slab	Recovery of Rs. 15,000/- per fortnight (Non-refundable) till completion of sample item.

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

Annexure-IV

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. …….

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

AFFIDAVIT

I / We have submitted a bank guarantee for the work _____

(Name of work)

Agreement No. _____

Dated _____ from _____

(Name of the Bank with full address)

to the Executive Engineer _____with a view

(Name of the Division)

to seek exemption from payment of performance guarantee in cash. This Bank guarantee expires on _____. I / We undertake to keep the validity of the bank guarantee intact by getting it extended from time to time at my / our own initiative upto a period of _____ months after the recorded date of completion of the work or as directed by the Engineer in charge.

I / We also indemnify the Government against any losses arising out of non-encashment of the bank guarantee if any.

(Deponent)
Signature of Contractor

Note : The affidavit is to be given by the Executants before a first class Magistrate.

Annexure-V

TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF ALUMINIUM DOORS, WINDOWS VENTILATORS, STRUCTURAL GLAZING & ALUMINIUM COMPOSITE PANEL WORKS

The agreement made this _____ day of _____ Two Thousand and _____ between _____ son of _____ (hereinafter called the GURANTOR of the one part) and the PRESIDENT OF INDIA (hereinafter called the Government of the other part.)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated _____ and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited structurally stable, leak proof and sound material, workmanship, anodizing, colouring, sealing.

AND WHEREAS THE GURANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, defective anodizing, colouring, sealing and finishing for 2 (Two) years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, defective anodizing, colouring, sealing and finishing for two years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

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

During this period of guarantee, the guarantor shall make good all defects 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 risk and cost. The decision of the Engineer-in-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all the defects or commits breach thereunder, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the

GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

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

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

1. _____
2. _____

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

1. _____
2. _____

Annexure-VI

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF SANITARY INSTALLATIONS / WATER SUPPLY / DRAINAGE WORK.

The agreement made this..... day of ..... (Two Thousand …… only)..... between .....S/o .....(hereinafter called the GUARANTOR of the one part) and the PRESIDENT OF INDIA (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (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 work in the said contract recited structurally stable, leak proof and sound material, workmanship, anodizing, colouring, sealing.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, and finishing for five years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any leakage, seepage, cracks in pipes, fittings, floor traps and guaranteed against faulty material and workmanship, defective galvanizing for five years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

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

During this period of guarantee, the guarantor shall make good all defects and in case of any defect to satisfaction of 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 the guarantor fails to make good all defects or commits breach thereunder, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the

GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the Obligator ……. 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. …….

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

LIST OF PREFERRED MAKES (CIVIL WORKS)

Annexure-VII

Approved makes of materials to be used in the work are as under. In case of nonavailability of these makes, the Engineer-in-charge may allow use of alternative BIS makes of materials in the work. Non BIS marked materials may be permitted by the Engineer-in-charge.

Sl. No.	Material description	Proposed make list
1	Acoustic Wall Paneling	
	i) Wooden Slats Panels	Armstrong, Gyptech, Anutone, BSR Calsi Ceilings, Bollard, Tranquil
	ii) Puffed Fabric Finish Panel	Armstrong, Gyptech, Anutone, Bollard, Tranquil
2	Aluminium section	Hindalco, Jindal, Indian Aluminium Co.
3	Aluminium shuttering	Knest, S-form, Durand forms (India) Pvt. Ltd, Mivan, Pabors
4	Aluminium Composite Panel 4 mm thick 'B1' Fire rated (external grade)	Viva, Alstone, Eurobond, Wonder Alu Board, Alutuff, Alex, Aldeko
5	Anodized aluminium hardware	Alualpha, Global, Classic, EBCO
6	AAC Block	MAX Blocks, Biltech ACE, Don Construction Chemicals, UltraTech, Garvit, HIL
7	Adhesive -AAC block Adhesive	UltraTech, Ferrous Crete, Aneeb, JK Cement (JK Tylo), Saint Gobain Weber, Ardex Endura, VURA, Berger, Astral
8	Adhesive -Tile Adhesive Grouts	STP Ltd, Kajaria, BASF, Don Building Chemicals (India) Pvt. Ltd., Ardex Endura, Aneeb, Garware, JK White (JK Tylo), Don Construction Chemicals India Pvt. Ltd., JK Cement, Vura, Berger, Astral, Trimurti
9	CPVC Pipe & fitting	Superme, Raksha, Ashirvad, Prayag Polymers, Birla HIL, AKG, Kothari, Astral, Vigor,
10	Cement (PPC/OPC)	ACC, Ultratech, Shree Cement, JK Cement, Century Cement, Prism Cement, Ambuja
11	Cement (White)	Birla White, JK White or equivalent
12	Centrifugally Cast (Spun) Iron Pipes & Fittings /Hubless pipes & fittings	NECO, Kapilansh, RPMF, SKF, RIF
13	a) CP brass bath fittings (Standard)	Jaquar (Essco), CERA, Johnson, Parryware, Euronics, Polyplast, Asian Paints (EssEss), Kerovit (Kajaria), Essel, RAK, Hindware Limited (Italian), Somany, Prayag, Astral,
	b) CP brass bath fittings (Premium)	Jaquar, Grohe, Kholer, Essel, Roka. Hindware Limited (Queo), Asian Paints (Bathsense),
14	DGU Glass	Gold Plus, Olumpus Toughened, Shankar Fenestration Glasses
15	Distemper- 1st quality acrylic distemper (washable/ ready mix / Low VOC)	Asian Paints (Tractor Aqua Lock Paint), Garware, Berger: Bison lite ICI-Dulux, JK MaxX (Jumbo)], Birla Opus Prime (D-20)
16	Dash fasteners / Clamps/ Anchors	Hilti, Bosch, AFT, Fischer, Wuerth
17	DI Pipes & fittings	Jindal, Electro steel, Tata Ductura, Kapilansh

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,……
Overwriting…..Nil.....

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18	Elastomeric Liquid W.P. membrane with acrylic polymer	Tikidan (Tiki Aquoseal ARR), Don Construction Chemicals, Pidilite, MYK Arment, Berger, Astral, Technonicol
19	Extruded polystyrene insulation board	Dowcorning, Supreme, Analco, Tikidan (DANOPREN Range), Technonicol
20	**False Ceiling System**	
	i) GI Sections for frame work of Gypsum/ Calcium Silicate board	Saint Gobain, Hi-Steel, USG Boral, Western, Anutone, BSR Calsi Ceilings
	ii) T-grid of GI powder coated for Mineral / perforated Gypsum / Calcium Silicate / Metal/ Glass tiles /GRG ceiling	Saint Gobain, Hi-Steel, USG Boral, Armstrong, Anutone, Western, Bollard, Royal Kraft, BSR Calsi Ceilings
21	**False Ceiling Tiles**	
	i) Perforated GRG tiles	Saint Gobain, USG Boral, Armstrong, Gyptech, Anutone, BSR Calsi Ceilings
	ii) Mineral Fiber tiles	Saint Gobain, Hi-Steel, USG Boral, Armstrong, Anutone
	iii) Glass Fiber Reinforced Gypsum tiles	Saint Gobain, Anutone, BSR Calsi Ceilings
	iv) Metal tiles	Saint Gobain, Hi-Steel, USG Boral, Armstrong, Western, Gyptech, Bollard, Royal Kraft, Anutone, BSR Calsi Ceilings, Tranquil
	v) Calcium silicate tiles	Aerolite, Ramco Hilux or equivalent
22	Fire rated doors	Signum fire protection, Shakti Metdoor, Navair, Promat, Bhawani Fire, Asahi, Supreme Metwood
23	Fire rated stainless steel fittings	Geze, Dorma, Ozone, Dorset, KICH & KICH PR
24	Fire rated glass	AIS, Hero Fire S, Schott, Sanit Gobain, Asahi
25	Floor hardener	Ironite, Perma, STP Ltd., MYK Arment, Berger, Astral
26	Floor spring & door closer	Godrej, Dorset, Ozone, Hardwyn, EBCO, Dormakaba, Geze, KICH & KICH PR
27	Flooring (Epoxy, PU Flooring, Anti-Static, Terrazzo, Car Park Deck, Self-levelling compound)	Beger, Don Construction Chemicals or equivalent.
28	Flush door shutters	Century, Durian, Greenply, Jayna (Jain wood Industries), Airolam, Archidply, Black Cobra
29	FRP doors shutters & frame	Jayna, Fiberways, Jain doors Pvt. Ltd.
30	FRP Drain cover & frame	Fibreways, Dudhi or equivalent
31	FRP Chajja	Fibreways, Dudhi, NECO
32	FRP Manhole Covers	Fibreways, Dudhi, NECO, Astral
33	GI Sections for Dry Wall Cladding / Partition	Western, Saint Gobain,/ Everest/ Trimurti
34	Gypsum plaster	Ferrous Crete, Gyproc, Saint Gobain, Ultra Tech, JK Cement 'Gypso MaxX', Western, Aneeb, Trimurti
35	Glass (Clear/ Float/ Frosted/ Refractive Glass/ Tinted/ Lacquered)	Saint Gobain, AIS, Modiguard, Gold Plus, Shankar Fenestration Glasses,

36	Glass -Mirror glass	Atul, Modi Guard, Golden Fish, Gold Plus
37	Glass Wool	Dow Corning, UP Twiga, Isover
38	Hand dryer	Euronics, Dolphy, Jaquar
39	HDPE Pipes	Reliance, Jain Pipes, Raksha, Supreme, Kothari, Prayag, Astral
40	HDPE /PVC Membranes for water Proofing	Asian Paints, Berger, Pidilite, MYK Arment, Technonicol
41	HDHMR Board	Black Cobra, Action Tesa, Century Ply, Greenply
42	Hessain Based Bituminous Felt	MAK Felt 46 Kg, STP Ltd. or equivalent
43	Laminates	Action TESA, Greenlam, Century Ply, Airolam, Archidply, Durian, Black Cobra
44	Laminated Glass	Gold Plus, Olumpus Toughened, Shankar Fenestration Glasses
45	Matting's (Trapper, carpet, Aluminium Dust – Buster)	Euronics, Dolphy, Eurotech
46	MS Tubular windows	Navair, Sukriti, Jangid Engineering Works
47	Melamine polish	Asian Paints melamine gold, Garware, Wudfin of Pidilite, Timbertone of ICI Dulux. Birla Opus Allwood
48	Manhole covers – (CI Manhole covers, frames and Gratings)	NECO, SKF, RPMF, Kapilansh
49	Manhole covers – (SFRC Manhole covers, frames and Gratings)	KK, JAIN, Pargati
50	Modular Kitchen	Godrej, Evok by Hindware, Glanz
51	Modular Expansion Joint	Herculus, MNR, Sanfield India Ltd, DECG (FRANO), Vexcolt, Pinnacle Solutions, V.R. Engineer
52	Pressed Steel door frames	Navair, Sukriti, Jangid Engineering Works
53	Plywood / Veneer	Greenply, Durian, Century, Airolam, Archidply, Black Cobra
54	Multicell Polycarbonate Sheet	GE Plastic, LEXAN, MG Polyplast, Danpal, Fibreways
55	Profile steel sheet	Ezydeck of TATA, Lloyd Superdeck, JSW, Jindal, Fibreways
56	Particle board	Action TESA, Merino, Archidply, Greenlam
57	Paver block & Kerb stone	Pavcon, Mayur, KK, Power, Navya
58	Paint -Acrylic emulsion	Asian Paints: (Premium Interior Emulsion Paint), Garware, Nerolac: Beauty Gold, Berger: Rangoli Total Care, ICI Dulux: Super Cover, JK MaxX (Trendz), Birla Opus Prime (I-50/Calista Everclear),
59	Paint-Premium acrylic	Asian Paints: (Royale Luxury Emulsion), Nerolac: Impression, Berger: Silk, ICI Dulux: Velvet Touch, JK MaxX (Majesta), Birla Opus Prime (One Pure Elegance),
60	Paint-Plastic emulsion	Asian Paints (Apcolite), Garware, Nerolac: Impression, Berger (easy clean), ICI Dulux 3in 1, Birla Opus Prime (I-50/Calista Everclear),
61	Paint -Textured Exterior Paint	Luxture, Asian Paints, Nerolac, Garware, Berger Paints, JK MaxX Paints, Birla Opus Prime, UTTPL,

62	Paint -Acrylic smooth exterior paint	Asian Paints: (Apex), Nerolac: Excel Super, Berger: Weather Coat, ICI Dulux: Weather Shield, JK Armour, Birla Opus Prime (E-30/E-50/ Calista Neo Star),
63	Paint -Premium acrylic smooth exterior paint with silicon additive	Asian Paints: Apex Ultima, Nerolac: Excel Total Super, Garware, Berger: Long life7, ICI Dulux : Weather Shield Max, JK MaxX (Maximo), Birla Opus Prime (E-70/One True Look),
64	Paint -Synthetic Enamel Paint	Asian Paints: Apcolite Premium Gloss Enamel, Nerolac: Synthetic Hi gloss, Berger: Luxol Hi gloss, ICI Dulux: Gloss Synthtic enamel, JK MaxX (JK Enamlo), Birla Opus Prime (N-52/N-53/ Sparkle Gloss/ Style Cover Max),
65	Primer-Cement Primer	Nerolac, Berger (BP white), Garware, Asian (Decoprime WT), ICI (White primer), JK MaxX (JK Primera), Birla Opus Prime (I-10/Calista Pro Hide),
66	Primer -Steel primer (Red Oxide Zinc Chromate Primer)	Asian Paints, Nerolac, Garware, Berger, ICI, JK MaxX, Birla Opus – (Red Oxide Primer / CMP RO Primer/ SGE RO Primer),
67	Primer -Wood primer	Asian Paints, Nerolac, Garware, Berger, ICI, JK MaxX, Birla Opus,
68	Paint- Epoxy paint	Asian Paints, Nerolac, Berger, ICI, JK MaxX, Birla Opus
69	Paint- Fire retardant paint	Asian Paints, Akzo Nobel, Wuerth Promat, JK MaxX, Birla Opus
70	PVC Water Tank	Syntex, JS Polyplast, Prayag, Astral, Vectus
71	PVC/WPC Jali	Black Cobra, Alstone, Rajshree, Jamex
72	PVC Flushing Cistern	Sparsh Pearl, Prima, Cera, Hindware
73	PVC Seat Cover	Sparsh Pearl. Jaquar, Hindware, Kohler
74	PTMT fittings	Shakti, Polyplast, Prima, Raksha, Prayag Polymer, Vectus,
75	Pipe-GI/MS Pipe	Tata, Jindal (Hisar), Prakash Surya
76	Pipe Fittings -GI	Unik, AVR, Zoloto
77	PVC door shutter and frame	Rajshri, Sintex, Jain Door Pvt. Ltd., Black Cobra
78	Polyurea coating for Water Proofing	Asian Paints, Berger, Pidilite, MYK Arment, Technonicol
79	Polyurethane over deck insulation foam	Berger, Technonicol or equivalent
80	Puf Sandwich Panel	Fibreways, Tata, EPACK, Alphapeb
81	Ready Mix Concrete (RMC Plant)	RMC India, Ultratech Concrete, ACC Ready Mix, AVRM India Pvt. Ltd., J.P. Group, Shree Cement Ltd. (Bangur Concrete), JK Cement (JK Super RMC)
82	Reinforcement- (Steel TMT bars)	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd. (RINL), JSW Steel Ltd, Jindal Steel & Power Ltd
83	Stainless steel railing, Accessories etc.	Jindal, Dormakaba, Ozone, Godrej, KICH & KICH PR
84	SS fittings for doors & window	Jindal, Dormakaba, Global, Dorset, EBCO, Hardwyn, Godrej, Ozone, Geze, Prayag, KICH & KICH PR
85	Sealant – (Silicon based water repellant / weather sealant)	Dow Corning, Waker, BASF, Pidilite (Dr. Fixit / Roff). STP Ltd., Makphalt, Don Construction Chemicals, Tikidan (Tiki Siliseal / Tikiseal PU Range), MYK Arment, Berger
86	Sealant (Poly-Sulphide)	Fosroc, Pidilite (Dr. Fixit/Roff), CAC, BASF, Sika, Don Construction Chemicals, Makphalt, Tikidan (Tiki Polyseal

		Range), MYK Arment, Berger
87	SW Pipes (BIS approved)	Anand, Parry, Perfect
88	a) Sanitary ware, fittings & accessories (Standard)	Jaquar (Essco), CERA, Johnson. Parryware, Euronics, Asian Paints (EssEss), Kerovit (Kajaria), Essel, RAK, Hindware Limited (Italian), Somany
	b) Sanitary ware, fittings & accessories (Premium)	Jaquar, Grohe, Kholer, Essel, Roka. Hindware Limited (Queo), Asian Paints (Bathsense),
89	Soap & Paper dispenser	Euronics, Jaquar, Essel, Kholer, KICH & KICH PR,
90	Stainless steel Grab Bars & Rails	Euronics, Jaquar, Essel, Dormakaba, KICH & KICH PR
91	Stainless Steel grating	Neer, Asian Paint, Essel, Euronics,
92	Stainless steel sink	Neelkanth, Niralli, Essel, Jayna, Plato, Prima, Prayag
93	SCI S&S Pipes & fittings	RIF, NECO, Kapilansh, RPMF, SKF
94	Tiles- Mosaic tiles/ Chequered Tiles	Ultra Tiles, Nitco, Pavcon
95	Tiles- Glazed Ceramic	Kajaria, Johnson, Somany, RAK, Nitco, Aparna Vitero, Italica, AGL, Orient Bell
96	Tiles- Vitrified Tiles (Antiskid / Matt / Glazed)	Kajaria, Johnson, Somany, RAK, Nitco, Aparna Vitero, Italica, AGL, Orient Bell
97	Tile Grouts	Aneeb, Astral, Don Construction Chemicals, MYK Arment
98	Toilet Cubicles	Merino (Titan Series), Greenlam (Sturdo Classic) or equivalent
99	Toughened Glass	Gold Plus, Olumpus Toughened, Shankar Fenestration Glasses
100	uPVC door/ window / ventilator	Fenesta, Veka, Duroplast, Aluplast, Prominance, Koemmerling, AdvikaFenster, Okotech [IS:17953:2023], Eumax [IS 17953: 2023], Yashpoly (IS 17953:2023], Pabros, Rajshri, Simta Astrix
101	uPVC doors and window hardware	Roto, EBCO, Dorset, GEZE
102	uPVC pipe and fittings	Astral, Supreme, Raksha, Ashirvad, Prayag Polymers, Birla HIL, AKG, Kothari, Vigor,
103	Water proofing compounds, (admixtures, plasticizer, super plasticizer, curing compounds)	Fosroc, ROFF/Dr. Aneeb, Fixit (Pidilite Industries), CAC, Perma, Sika, BASF, STP Ltd., Garware, Tikidan (Danomix Range), Birla Opus Prime, Penetron, Don Construction Chemicals, MYK Arment, Berger, Technonicol
104	Water proofing compound (Integral) (with cement for plaster & mortar)	Fosroc: Conplast 421, CAC, Aneeb, Perma, Dr. Fixit : LW+, Sika: Sikacim, STP Ltd., Garware, Tikidan (Danomix LW Range), Birla Opus Prime, Penetron, Don Construction Chemicals, MYK Arment, Berger, Technonicol
105	Water proofing compound (for bathroom/ toilet /balcony & other wet areas)	Fosroc: Bush Bond, Aneeb, Dr. Fixit : Pidifine 2K, Asian Paints: Damp Block 2K, Garware, Perma, CICO: Tapecrete, STP Ltd., Tikidan (Danocrte Range), Birla Opus Prime (C2K, C2K+), Don Construction Chemicals, MYK Arment, Berger, Technonicol
106	Water proofing compound (Crystalline)	Fosroc: Bushbond TGP, CAC, Dr. Fixit : Dr. Fixit Krystalline, Sika: Sika 101h, Aneeb, Perma, Garware, STP Ltd., Tikidan (Tikicryst-BC Range), Penetron, Don Construction Chemicals, MYK Arment, Berger, Technonicol

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

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107	Water Proofing Coatings (Polyurethane, Polyurea, Acrylic Cementitious, SRI Coating, Food grade epoxy coating, Coal tar epoxy, Silicone water repellent coating)	Aneeb, Berger, Technonicol or equivalent
108	WTP -MBBR Reactor, Multigrade Filter and Activated carbon Filter	Degremont, OSDPL, Thermax & Ion Exchange
109	WTP- MBBR Media	Cooldeck, MM Aqua, Eco Aqua & Ion Exchange
110	WPC door shutter and frame	Alstone, Jamex, Rajshri, Plasto Green, Black Cobra
111	Wall putty (cement based)	Asian Paints, Birla Wall Care, Trimurti, Garware, JK White, JK Cement (JK wall MaxX),
112	WPC Board	Jamex, Alstone, Rajshri, Black Cobra

Note : Contractor shall provide applicable warranty of the products/materials being used in the work to the Engineer-in-Charge at time of approved of the product/material & contractor shall finally submit warranty taken from the manufacturer to Engineer-in-Charge for record.

SCHEDULE OF QUANTITY

Name of Work : Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).

S No	Description	Qty.	Unit	Rate	Amount
1	**EARTH WORK**				
1.1	Disposal of moorum /building rubbish/ malba/ similar unserviceable, dismantled or waste material by mechanical transport including loading, transporting, unloading to approved municipal dumping ground for lead upto 10 km for all lifts, complete as per directions of Engineer-in-charge. Note - item to be applicable in urban areas having directions for restricted hours for movement/ plying of load carrying motor vehicle of 3.5 cum or more.	1000.00	cum	494.10	494100.00
1.2	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :				
1.2.1	All kinds of soil				
1.2.1.1	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	535.00	metre	352.15	188400.00
1.3	Supplying chemical emulsion in sealed containers including delivery as specified.				
1.3.1	Chlorpyriphos/ Lindane emulsifiable concentrate of 20% Note:- This item shall be done only after prior approval of Engineer-in-charge.	701.00	litre	234.75	164560.00
1.4	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of				

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

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	chemical emulsion) :				
1.4.1	Treatment of existing masonry using chemical emulsion @ one litre per hole at 300 mm interval including drilling holes at 45 degree and plugging them with cement mortar 1:2 (1 cement : 2 coarse sand) to the full depth of the hole :				
1.4.1.1	With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration	4123.00	metre	43.00	177289.00
2	**CONCRETE WORK**				
2.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
2.1.1	1:2:4 (1 Cement : 2 coarse sand (zone-Ill) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	452.00	Cum	7878.50	3561082.00
2.1.2	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	161.00	Cum	6518.60	1049495.00
2.2	Providing and laying cement concrete in retaining walls, return walls, walls(any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., up to floor five level, excluding the cost of centering, shuttering and finishing:				
2.2.1	1:5:10 (1 cement : 5 coarse sand (zone-lll) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources).	97.00	Cum	8519.20	826362.00
3	**CLADDING WORK**				
3.1	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms,				

	vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.				
3.1.1	Granite stone slab of colour Jet black, Cherry/Ruby red				
3.1.1.1	Area of slab upto 0.50 sqm	69.00	Sqm	5413.50	373532.00
3.1.1.2	Area of slab over 0.50 sqm.	15.00	Sqm	5136.30	77045.00
3.2	Extra for providing opening of required size & shape for wash basin/kitchen sink in kitchen platform, vanity counter and similar location in marble/ Granite/ stone work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete.	189.00	Each	978.70	184974.00
3.3	Providing and fixing machine cut, mirror/ eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattem 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.				
3.3.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	51.00	sqm	10414.80	531155.00
3.4	Providing and fixing Ist quality ceramic glazed wall tiles *(600mm x300mm)* conforming to IS: 15622	4426.00	sqm	1267.95	5611947.00

	(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.				
4	**WOOD AND PVC WORK**				
4.1	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).				
4.1.1	Second class teak wood	16.00	Cum	142949.70	2287195.00
4.2	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part 1) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters:				
4.2.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	519.00	sqm	2392.65	1241785.00
4.3	Providing and fixing nickel plated M.S. pipe curtain rods with nickel plated brackets :				
4.3.1	25 mm dia (heavy type)	167.00	mtr	186.40	31129.00
4.4	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.				
4.4.1	Fixed to openings /wooden frames with rawl plugs screws etc.	6474.00	kg	238.35	1543078.00

4.5	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :				
4.5.1	250x10 mm	228.00	Each	441.60	100685.00
4.5.2	200x10 mm	244.00	Each	358.40	87450.00
4.6	Providing and fixing bright finished brass door latch with necessary screws etc. complete :				
4.6.1	300x16x5 mm	246.00	Each	322.20	79261.00
4.7	Providing and Fixing of Bright finished brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc complete as per direction of Engineer-in-Charge.	221.00	Each	854.65	188878.00
4.8	Providing and fixing special quality bright finished brass cupboard or ward robe locks with four levers of approved quality including necessary screws etc. complete.				
4.8.1	65 mm	190.00	Each	362.40	68856.00
4.9	Providing and fixing bright finished brass handles with screws etc. complete:				
4.9.1	125 mm	458.00	Each	256.65	117546.00
4.9.2	100 mm	488.00	Each	234.70	114534.00
4.10	Providing and fixing aluminium die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm), with necessary accessories and screws etc. complete.	254.00	each	1124.85	285712.00
4.11	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.				
4.11.1	Double strip (horizontal type)	400.00	each	39.70	15880.00
4.12	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S				

	including cost of adhesive of approved quality				
4.12.1	1.0 mm thick	1385.00	sqm	897.30	1242761.00
4.13	Providing and fixing wire gauge shutters using stainless steel grade 304 wire gauge with wire of dia 0.5 mm and average width of aperture 1.4 mm in both directions for doors, windows and clerestory windows with necessary screws.				
4.13.1	35 mm thick shutters				
4.13.1.1	With ISI marked stainless steel butt hinges of required size				
4.13.1.1.1	Second class teak wood	57.00	sqm	5217.65	297406.00
4.14	Providing and fixing plain lining with necessary screws/nuts & bolts/ nails, including a coat of approved primer on one face, and fixed on wooden /steel frame work, complete as per direction of Engineer-in- charge (Frame work shall be paid for separately).				
4.14.1	12 mm thick commercial ply conforming to IS : 1328 BWR type	347.00	sqm	1224.65	424954.00
4.15	Providing and fixing factory made uPVC glazed/wire mesh windows/doors comprising of lead free uPVC multi-chambered frame, sash and mullion/coupler (where ever required) extruded profiles having minimum wall thickness of 1.70 mm for Series R1 and R2 profiles and 2.10 mm for Series R3 and R4 profiles conforming to EN: 12608 in any shape, colour and design duly reinforced with galvanized mild steel section made of required shape & size as per CPWD Specification, uPVC extruded glazing beads, interlocks and Inline sash adaptor (where ever required) of appropriate dimension, EPDM gasket, hardware, SS 304 grade fasteners of minimum 8 mm dia with countersunk head, comprising of matching polyamide PA6 grade sleeve for fixing frame to finished wall as per IS 1367 : Part 1 to 14, plastic packers, plastic				

	caps and necessary stainless steel screws etc. Profile of frame, sash & mullion (if required) shall be mitred cut and fusion welded/mechanically jointed duly sealed at all corners, including drilling of holes for fixing hardware and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of approved size and quality, all complete as per approved drawing conforming to CPWD specification & direction of Engineer-in-Charge. Section of steel reinforcement and cross sections of uPVC profiles to be as per design approved by Engine er-in-Charge. Wire mesh / Glazing of plain/ toughened/ laminated/ double glass unit with / without high performance coatings as per design requirements and conforming to IS: 3548 & IS: 16231 shall be paid separately. Note:- Structural design proof checked from a Government Engineering Institute, to be provided by the manufacturer for : (i) Sites with basic wind speed > 45 m/sec as per IS 875 – Part 3 (ii) Sites with structure height more than 20m for all wind speeds-				
4.15.1	Two track two panels sliding window with Aluminium channel for roller track, wool pile, nylon rollers with SS 304 body.				
4.15.1.1	Using R3 series with frame (55 mm & above) X (40 mm & above) & sash (30 mm & above) x (65 mm & above) with zinc alloy (zamak) powder coated handle on every panel along with multi-point locking system (Height upto 1.8m).	27.00	sqm	8799.25	237580.00
4.15.2	Three track three panels sliding window with two glazed & one wire mesh panels with Aluminium channel for roller track, wool pile, nylon rollers with SS 304 body.				

4.15.2.1	Using R2 series with frame (70 mm & above) x (40 mm & above) & both glazed and fly screen sash (25 mm & above) x (50 mm & above) with zinc alloy (zamak) powder coated touch locks with hook. (Height upto 1.2 metre).	110.00	sqm	10993.55	1209291.00
4.15.3	Three track three panels sliding door with two glazed & one wire mesh panels with Aluminium channel for roller track, wool pile, zinc alloy (zamak) powder coated handle on two panels along with multi-point locking system, adjustable nylon rollers with SS 304 body.				
4.15.3.1	Using R3 series with frame (98 mm & above) x (40 mm & above) & both glazed and fly screen sash (30 mm & above) x (74 mm & above)(Height upto 2.5 metre).	767.00	sqm	10078.95	7730555.00
4.15.4	Casement Window with Double Rebate Frame with one Side Hung Glazed Panel and one Side Hung wire mesh Panel with S.S. 304 friction hinges as per size and weight of sash, multi-point locking system, zinc alloy (zamak) powder coated handles on both glazed and fly screen panel				
4.15.4.1	Using R3 series with frame (110 mm & above) x (45 mm & above) & glazed sash (55 mm & above) x (656 mm & above) & fly screen sash (30 mm & above) x (55 mm & above) & metal grill (if required to be paid separately). (Height upto 1.8 metre)	149.00	sqm	22785.35	3395017.00
4.16	Providing and fixing 6 mm thick both sides Pre-laminated cement bonded wood particle board as per IS : 15786:2008 of approved brand and shade with suitable full threaded steel screws etc. on the backing of racks, drawer, cupboard, kitchen cabinet under kitchen counter etc. all complete as per direction of Engineer-in-charge.	531.00	Sqm	1010.60	536629.00

4.17	Providing and fixing cupboard shutter with 19mm thick one side decorative and other side balancing lamination factory pressed BWP grade marine ply as per IS 710 of approved brand including 2mm thick PVC edge banding tape with hot glue by edge bending machine etc. with auto closing spring loaded hinges (hydraulic type) etc. complete as per direction of Engineer-in-charge.(Payment of providing and fixing auto closing hinges shall be paid separately)	530.00	sqm	2829.25	1499503.00
4.18	Providing and fixing 19mm thick both side balancing lamination factory pressed BWP grade marine ply as per IS 710 of approved brand boxes, shelves, racks, almirah, cupboard and drawer etc. including necessary nails, screws etc. complete as per direction of Engineer-in- charge.	1007.00	sqm	2593.15	2611302.00
4.19	Providing and fixing stainless steel fancy handle of approved make fixed with SS screws etc. complete as per direction of Engineer-in-charge.				
4.19.1	200 mm	574.00	Each	186.65	107137.00
4.20	Providing and fixing stainless steel soft closing spring hinges at 0 degree hinges (hydraulic type) of approved make/brand to cupboard shutters with full threaded steel screws including making necessary recess in board and finished etc. complete as per direction of Engineer-in-charge.	1600.00	Each	272.00	435200.00
4.21	Providing and Fixing of Stainless steel soft closing heavy type telescopic drawer channels of approved make 500 mm long with screws etc complete as per direction of Engineer-in-Charge.	373.00	One Set	885.10	330142.00
4.22	Providing and fixing 2mm thick and 18mm or 19 mm wide PVC edge banding tape of approved quality for cupboard/ wardrobe shutters including necessary hot	3906.00	metre	43.80	171083.00

	glue and edge banding machine etc complete as per direction of Engineer-in-charge.				
5	**STEEL WORK**				
5.1	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.				
5.1.1	Hot finished welded type tubes	6115.00	kg	194.40	1188756.00
6	**FLOORING**				
6.1	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	721.00	sqm	1330.00	958930.00
6.2	Providing and laying Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the				

	tiles gently and easily.				
6.2.1	Double charge vitrified tile polished finish of size				
6.2.1.1	Size of Tile 600 x 600 mm	3173.00	sqm	1453.65	4612431.00
6.2.2	Glazed Vitrified tiles Matt/Antiskid finish of size				
6.2.2.1	Size of Tile 600 x 600 mm	264.00	sqm	1464.85	386720.00
6.3	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to 1.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.				
6.3.1	Size of Tile 600x600 mm	283.00	sqm	1623.05	459323.00
6.4	Grouting the joints of flooring tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg), including filling / grouting and finishing complete as per direction of Engineer-in-charge.				
6.4.1	Size of Tile 600x600 mm	3173.00	sqm	309.05	980616.00
6.5	Deduct for not grouting the joints with white cement and matching pigment in the items of fixing of vitrified tiles.	3173.00	sqm	-13.30	-42201.00
6.6	Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white				

	cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
6.6.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	214.00	sqm	6603.35	1413117.00
6.7	Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sgm, including pointing with white cement slurry admixed with pigment to match the marble shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
6.7.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	30.00	sqm	6927.35	207821.00
6.8	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as				

	specified and as directed by the Engineer-in-Charge.				
6.8.1	Polished Granite stone slab of all colour and texture except Black, Cherry/Ruby Red	1745.00	sqm	3071.05	5358982.00
7	**ROOFING**				
7.1	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes				
7.1.1	110 mm diameter	1574.00	Metre	377.40	594028.00
7.2	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion.				
7.2.1	Bend 87.5°				
7.2.1.1	110 mm bend	124.00	each	150.35	18643.00
7.2.2	Shoe (Plain)				
7.2.2.1	110 mm Shoe	124.00	each	131.85	16349.00
7.3	Providing and fixing unplasticised - PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete				
7.3.1	110 mm	1574.00	each	371.30	584426.00
7.4	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm,				

	at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :				

7.4.1	12.5 mm thick tapered edge Glass Reinforced Gypsum {GRG) board conforming to IS: 2095- (Part 3):1996 (Boards with BIS certification marks)	218.00	sqm	1520.10	331382.00
7.5	Providing and fixing tiled false ceiling of specified materials of size 595x595 mm in true horizontal level, suspended on inter locking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38 mm made from 0.30 mm thick (minimum) sheet, spaced at 1200 mm center to center and cross "T" of size 24x25 mm made of 0.30 mm thick (minimum) sheet, 1200 mm long spaced between main "T" at 600 mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600 mm and size 24x25 mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600 mm panel to form grids of 600x600 mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, required cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using Gl slotted cleats of size 27 x 37 x 25 x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm Gl adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200 mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete for all heights as per specifications, drawings and as directed by Engineer-in-charge.				

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

7.5.1	GI Metal Ceiling Lay in perforated Tegular edge global white color tiles of size 595x595 mm and 0.5 mm thick with 8 mm drop; made of Gl sheet having galvanizing of 100 gms/sgm (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC (Noise Reduction Coefficient) of 0.5, 60 electro statically polyester powder coated of thickness microns (minimum), including factory painted after bending and perforation and backed with a black Glass fiber acoustical fleece.	470.00	sqm	2068.75	972313.00
8	**FINISHING**				
8.1	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specifications :				
8.1.1	Two or more coats applied on walls @ 1.25 ltr/10 sqm over and including one coat of Special primer applied @ 0.75 ltr /10 sqm	16444.00	sqm	193.70	3185203.00
8.2	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
8.2.1	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture.	630.00	sqm	226.25	142538.00
8.3	Washed stone grit plaster on exterior walls height upto 10 metre above ground level, in two layers, under layer 12 mm cement plaster 1:4 (1cement : 4 coarse sand), furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 Kg of cement per square metre, top layer 15 mm cement plaster 1:1/ 2:2 (1 cement: 1/2 coarse sand : 2 as with stone chipping 10 mm nominal size), in panels with groove all around per approved pattern, including scrubbing and washing the top layer brushes and water to expose the stone chippings ,complete as per specification and	341.00	sqm	1162.25	396327.00

	direction of Engineer-in-charge (payment for providing grooves shall be made separately).				
8.4	Forming groove of uniform size in the top layer of washed stone grit plaster as per approved pattern using wooden battens, nailed to the under layer, including removal of wooden battens, repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge :				
8.4.1	15 mm wide and 15 mm deep groove	360.00	metre	75.15	27054.00
8.5	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.	16444.00	sqm	156.05	2566086.00
8.6	Removing dry or oil bound distemper, water proofing cement paint and the like by scrapping, sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete.	16226.00	sqm	25.15	408084.00
8.7	Polishing in high gloss/matt finish melamine clear polish on wood work in required color/wooden shade texture with following process in the sequence as detailed below: 1. The surface to be polished is rubbed with sand paper 80/120 no. and then with sand paper of 160/180 nos. 2. Applying two coats of sealer with spray gun and allowing sufficient drying time for 1st coat and 2nd coat is allowed to dry for 8 to 12 hrs. 3. On drying of sealer coat, wet rubbing with emery cloth of finer grading with ample water to remove excess sealer layer and make the surface further smooth after this wet rubbing, then surface is applied with special grade melamine fillers to fill all the small and big holes/grooves etc. Filler coat to be	422.00	sqm	1360.45	574110.00

	allowed to dry for 4 to 6 hrs on which again a light wet rubbing is done this surface is further allowed to dry for 12 hrs. 4. On this, 1st coat of melamine polish is applied with spray gun using melamine clear polish and melamine thinner in required proportion. This 1st coat is allowed to dry for 24 hrs then this dry surface is again fine wet rubbed smooth, which is further allowed to dry for 12 hrs. The final melamine polish is applied with compressor pressure spray gun using melamine clear polish and melamine thinner mixed in required proportion complete as per direction of Engineer-in-Charge. (Final coat to be done in 1 or 2 layers without gap of time.)				
9	**REPAIRS TO BUILDING**				
9.1	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq.meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.				
9.1.1	With cement mortar 1:4 (1 cement: 4 coarse sand)	1245.00	sqm	560.50	697823.00
9.2	Fixing chowkhat in existing opening in brick/ RCC wall with dash fasteners/ Chemical fasteners of appropriate size (3 nos on each vertical member of door chowkhat and 2 nos on each vertical member of window chowkhats), including Cost of dash fasteners/ chemical fastener.	2858.00	each	217.10	620472.00
9.3	Dismantling W.C. Pan of all sizes including disposal of dismantled materials including malba all complete as per directions of Engineer-in-Charge.	180.00	each	134.10	24138.00

9.4	Dismantling 15 to 40 mm dia G.I. pipe including stacking of dismantled pipes (within 50 metres lead) as per direction of Engineer-in-Charge.				
9.4.1	(a) Internal Work- Exposed on wall	3063.00	mtr.	3.25	9955.00
10	**DISMANTLING AND DEMOLISHING**				
10.1	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.				
10.1.1	Nominal concrete 1:3:6 or richer mix (including equivalent design mix)	740.00	cum	2434.25	1801345.00
10.2	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	5.00	cum	3551.25	17756.00
10.3	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
10.3.1	In cement mortar	39.00	cum	2060.20	80348.00
10.4	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead :				
10.4.1	Of area 3 sq. metres and below	849.00	each	367.20	311753.00
10.5	Dismantling steel work manually/ by mechanical means in built up sections without dismembering and stacking within 50 metres lead as per direction of Engineer-in-charge.	11505.00	kg	3.85	44294.00
10.6	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.				
10.6.1	For thickness of tiles 10 mm to 25 mm	6087.00	sqm	73.40	446786.00

10.7	Dismantling stone slab Flooring laid in cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.	2470.00	sqm	266.45	658132.00
10.8	Dismantling wooden boardings in lining of walls and partitions, excluding supporting members but including stacking within 50 metres lead :				
10.8.1	Thickness above 10 mm up to 25 mm	463.00	sqm	77.75	35998.00
10.9	Dismantling of flushing cistern of all types (C.l./ PVC/ Vitrious China) including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead.	180.00	each	112.05	20169.00
10.10	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	4556.00	sqm	54.65	248985.00
10.11	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable material and stacking of serviceable material with in 50 meters lead as directed by Engineer-in-charge.	153.00	sqm	56.35	8622.00
11	**SANITARY INSTALLATIONS**				
11.1	Providing and fixing CP Brass 32 mm size Bottle Trap of approved quality & make and as per the direction of Engineer-in-charge.	179.00	each	1034.80	185229.00
11.2	Providing and fixing soil, waste and vent pipes :				
11.2.1	100 mm dia.				
11.2.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	1502.00	Mtr	1169.30	1756289.00
11.3	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
11.3.1	100 mm				
11.3.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	174.00	Each	567.20	98693.00

11.4	Providing and fixing plain bend of required degree.				
11.4.1	100 mm				
11.4.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	174.00	Each	368.00	64032.00
11.5	Providing and fixing single equal plain junction of required degree :				
11.5.1	100x100x100 mm				
11.5.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	348.00	each	581.45	202345.00
11.6	Providing and fixing shielded coupling for Hubless centrifugally cast iron pipe				
11.6.1	100 mm				
11.6.1.1	SS 304 grade coupling with EPDM rubber gasket	1420.00	Each	432.05	613511.00
11.7	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 :				
11.7.1	100 mm inlet and 100 mm outlet				
11.7.1.1	Sand cast iron S&S as per IS: 3989	348.00	each	854.55	297383.00
11.8	Providing and fixing M.S. holder bat clamp of approved design to sand cast iron/ cast iron (spun) pipes comprising of M.S. flat brackets made of 50x5 mm flat of specified shape, projecting 75 mm outside the wall surface and fixed on wall with 4nos, 6 mm dia expansion hold fasteners, including drilling necessary holes in brick wall/ CC/ RCC surface and the cost of bolts etc. The pipes shall be fixed to the already fixed brackets with the help of 30 mm x1.6 mm galvanised M.S. flats of specified shape and of total length 420 mm and shall be fixed with M.S. nuts, bolts, & washers of size 25x6 mm, one bolts on each side of the pipe.				
11.8.1	Total bracket length 810 mm of approved shape and design (for two 100 mm dia pipes)	540.00	Each	378.10	204174.00

11.8.2	Total bracket length 1040 mm of approved shape and design (for three 100 mm dia pipes)	180.00	Each	451.90	81342.00
11.9.	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge.	1.00	Each	7979.20	7979.00
12	**WATER SUPPLY**				
12.1	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply and 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				
12.1.1	25 mm nominal dia Pipes	1785.00	Mtr	401.55	716767.00
12.2	providing and fixing Chlorinated Polyvinyl pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings and 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.				
12.2.1	20 mm nominal dia Pipes	1278.00	mtr.	537.60	687053.00
12.2.2	32 mm nominal dia Pipes	338.00	mtr.	739.30	249883.00

12.3	Providing and fixing uplasticised PVC connection pipe with brass unions :				
12.3.1	45 cm length				
12.3.1.1	15 mm nominal bore	921.00	each	97.75	90028.00
12.4	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank	95000.00	per litre	11.00	1045000.00
12.5	Providing and fixing PTMT Ball cock of approved quality, colour and make complete with apoxy coated aluminium rod with L.P./ H.P.H.D. plastic ball.				
12.5.1	25 mm nominal bore, 152mm long, weighing not less than 440 gms	190.00	Each	523.80	99522.00
12.6	Cutting holes up to 30x30 cm in walls including making good the same:				
12.6.1	With common burnt clay F.P.S. (non modular) bricks	379.00	Each	416.80	157967.00
13	**DRAINAGE**				
13.1	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.l. cover with frame of 300 x 300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:				
13.1.1	100x100 mm size P type				
13.1.1.1	with common burnt clay F.P.S. (non modular) bricks of class designation 7.5	50.00	each	2707.65	135383.00
13.2	Dismantling of old S.W. pipes including breaking of joints and bed concrete stacking of useful materials near the site within 50 m lead and disposal of unserviceable materials into municipal dumps :				
13.2.1	150 mm diameter	138.00	metre	98.45	13586.00

13.3	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
13.3.1	250 mm dia. R.C.C. pipe	160.00	metre	899.80	143968.00
13.4	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size) inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design :				
13.4.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :				
13.4.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	25.00	Each	12770.55	319264.00
13.5	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the				

	drain etc. complete :				
13.5.1	For pipes 100 to 250 mm diameter	35.00	Each	810.45	28366.00
13.6	Dismantling of manhole including R.C.C. top slab, C.I. cover with frame, including stacking of useful materials near the site and disposal of unserviceable materials within 50 m lead as per direction of Engineer-in-charge:				
13.6.1	Rectangular manhole 90x80 cm and 45 cm deep	25.00	each	2540.85	63521.00
14	**ALUMINIUM WORK**				
14.1	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & double acting hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc. to be paid separately).	22.00	sqm	5325.90	117170.00
15	**WATER PROOFING**				
15.1	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : (a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm. This layer will be allowed to air cure for 4 hours. (b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	654.00	sqm	617.05	403551.00

15.2	Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application /system not less than 500 (microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineer- in-Charge.	4555.00	sqm	563.10	2564921.00
16	**CONSERVATION OF HERITAGE BUILDINGS**				
16.1	Providing and fixing double scaffolding system (cup lock type) on the exterior side of building/structure, upto 25 metre height, above ground level, including additional rows of scaffolding in stepped manner as per requirement of site, made with 40 mm dia M.S. tube, placed 1.5 metre centre to centre, horizontal & vertical tubes joint with cup & lock system with M.S. Tubes, M.S. tube challis, M.S. clamps and staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for execution of work of cleaning and/ or pointing and/ or applying chemical and removing it thereafter. The scaffolding system shall be stiffened with bracings, runners, connecting with the building etc, wherever required, if feasible, for inspection of work at required locations with essential safety features for the workmen etc., complete as per directions and	5858.00	sqm	338.25	1981469.00

	approval of Engineer-in-charge.				
	Note:- (1) The elevational area of the scaffolding shall be measured for payment purpose. (2) The payment will be made once only for execution of all items for such works.				
16.2	Cleaning the sand stone surface and removing dirt, dust, bird dropping, grease, oil, algae, fungus, monkey beats, vegetable growth etc., including providing, applying and washing the surface with liquid Ammonia Chemical of 5% solution and other chemical cleaning agent as approved by Archaeological Survey of India/ Engineer-in-charge, of approved brand and manufacturer, with the help of required scrubbers and also cleaning with machine operated water jet mixed with desired quantity of fine silica where ever required, without causing any scratching/ damage to the stone surface and finally washing the surface with clean water with the help of pressure jet machine, complete in all respect, including taking all precautions to safeguard ventilators, windows, doors etc. by suitable covering so as to avoid any damage to the building/structure, all as per direction of Engineer-in-charge (The rate is inclusive of all materials & labours involved except scaffolding).	6410.00	sqm	211.05	1352831.00
16.3	Providing and applying antifungal wash treatment using 3% solution of sodium pentachlorophenate, of reputed brand and manufacturer, on cleaned sand stone surface at desired locations as per direction of Engineer-in-charge (The rate is inclusive of all materials & labours involved except scaffolding).	6410.00	sqm	77.90	499339.00
17	**NEW TECHNOLOGIES AND MATERIALS**				

17.1	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid door/ window/ Clerestory windows & other Frames /Chowkhat comprising of virgin PVC polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/ wheat husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) fabricated with miter joints after applying PVC solvent cement and screwed with full body threaded star headed SS screws having minimum frame density of 750 kg/cum, screw withdrawal strength of 2200 N (Face) & of 1100 N (Edge), minimum compressive strength of 58 N/mm2, modulus with elasticity 900 N/mm2 and resistance to spread of flame of Class A category property of being termite/borer proof and fire retardant and fixed in position with M.S hold fast/lugs/SS dash fasteners of required dia and length complete as per direction of Engineer-In- Charge. (M.S hold fast/lugs or SS dash fasteners shall be paid for separately). Note: For WPC solid door/window frames, minus 5 mm tolerance in dimensions i.e depth and width of profile shall be acceptable. Variation in profile dimensions on plus side shall be acceptable but no extra payment on this account shall be made.				
17.1.1	Frame size 65 x 100 mm	972.00	Metre	1111.30	1080184.00
17.2	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid decorative type flush door shutter of required size comprising of virgin polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/ wheat husk) and non toxic additives (maximum				

	toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) & 900 N (Edge), minimum compressive strength 50 N/mm2, modulus of elasticity 850 N/mm2 and resistance to spread of flame of Class A category with property of being termite/borer proof, water/moisture proof and fire retardant. WPC to be laminated with PVC foil of minimum 14 microns thick of approved design pasted with hot melt adhesive on both faces of shutter and fixing with stainless steel butt hinges of required size with necessary full body threaded star headed counter sunk S.S screws, all as per direction of Engineer-In- Charge. (Note: stainless steel butt hinges and necessary S.S screws shall be paid separately)				
17.2.1	30 mm thick	305.00	sqm	4764.20	1453081.00
17.3	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid board one side white color and other side of board laminted with PVC foil of minimum 14 micron thickness of approved design pasted with hot melt adhesive for cup boards, work stations and bathroom/ kitchen cabinet etc. of required sizes comprising of virgin polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder! rice husk/wheat husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) & 900 N (Edge), minimum compressive strength 50 N/mm2, modulus of elasticity 850 N/mm2 and resistance to spread of flame of Class A category with property of being termite/borer				

	proof, water/moisture proof and fire retardant and fixing with stainless steel piano hinges/soft close clip on concealed hinges of required size with necessary full body threaded star headed counter sunk S.S screws, all as per direction of Engineer-In- Charge. (Note: stainless steel piano hinges/soft close clip on concealed hinges and necessary S.S screws shall be paid separately)				
	18 mm thick	147.00	sqm	2992.90	439956.00
				TOTAL = (A)	**87151891.00**
	Correction factor on existing items of the DSR-2023@0.973xon (A) =				84798790.00 (B)
				Cost Index @ 5% on (B)	**4239940.00**
				TOTAL =	**89038730.00**
18	**MARKET RATE**				
18.1	Providing and fixing floor mounted, white vitreous china single piece, double traps syphonic water closet(Jaquar SLS- WHT-6851S220PP) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list of size 360x650x685 mm with white vitreous china cistern dual flushing system, including all fittings and fixtures with seat cover, cistern fittings, nuts, bolts and gasket etc including making connection with the existing trap, complete in all respect as per directions of Engineer-in-Charge.	172.00	each	22851.95	3930535.00
18.2	Providing and fixing wall hung WC, hinges and accessories set of size 370x490x365mm of Jaquar (Cat. No.ITS-WHT-6953NBIPP) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list with UF Soft close slim seat cover, hinges, accessories set concealed cistern for wall hung WC of Jaquar (Cat no.JCS-WHT-2400S) with control plate of Jaquar	8.00	each	37699.20	301594.00

	(Cat no.JCP-CHR-2415) including all fittings and fixtures, nuts, bolts and gasket etc including making connection with the existing P/S trap, complete in all respect as per directions of Engineer-in-Charge.				
18.3	Providing and fixing Health faucet with 8mm dia , 1m long flexible tube and wall hook make Jaquar Cat-No.(ALDCHR-573) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list of approved make & quality complete as per direction of Engineer-in-Charge.	8.00	each	1247.20	9978.00
18.4	Providing & fixing CP brass health faucet with hook & 1M hose (Jaquar Cat No.ALD-587) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list standard & design all complete approved by Engineer-in-Charge. 15 mm nominal bore.	172.00	each	1010.30	173772.00
18.5	Providing and fixing Vitreous china table top wash basin (Jaquar make Cat No.JDS-WHT-25907N) or equivalent of size 530x420x140 mm with C.P. brass Waste coupling (Jaquar make Cat No.ALD-705) 32mm Size or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list including, making hole top of platform or wherever required all complete as per direction of Engineer-in-charge.	8.00	each	8483.60	67869.00
18.6	Providing and fixing Vitreous china table top wash basin (Jaquar make Cat No.JDS-WHT-25909) or equivalent of size 495x395x150 mm with C.P. brass Waste coupling (Jaquar make Cat No.ALD-705) 32mm Size or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list including, making hole top of platform or wherever required all complete as per	172.00	each	4612.30	793316.00

	direction of Engineer-in-charge. .				
18.7	Providing and fixing Wash basin mixer Wall Mounted Consisting of operating lever ,cartridge sleeve, wall flange nipple & spout (Make-Jaquar Cat No- OPP-15011BPM) or equivalent with Concealed body for single lever (Make-Jaquar Cat No-ALD-233N) or equivalent all complete as per direction of Engineer-in-charge. .	8.00	each	4200.30	33602.00
18.8	Providing and fixing Wash basin mixer Wall Mounted Consisting of operating lever ,cartridge sleeve, wall flange nipple & spout (Make-Jaquar Cat No-OPP- 15233NKPM) or equivalent with Concealed body for single lever (Make-Jaquar Cat No-ALD-233N) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list all complete as per direction of Engineer-in-charge. .	172.00	each	6531.90	1123487.00
18.9	Providing and fixing C.P. Brass Overhead Shower 180mm Round Shape Single Flow with Air Effect of Jaquar (CAT no. OHS-1755) with CP Brass Concealed Body for Single Lever Diverter 40mm of make Jaquar (Cat. No. ALD-075) & with CP Brass single lever exposed parts kit of divertor (Cat. No. FUS 29075K) and Shower Arm 20mm dia. & 450mm Long Round Shape with 90˚ Bend for Wall Mounted Showers with Flange Jaquar Make CAT No. SHA-479L450 and bath Tub spout with wall flange of Jaquar (SPJ-CHR-101429) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list standard & design all complete approved by Engineer-in-Charge.	121.00	each	10639.15	1287337.00

18.10	Providing and fixing Aquamax Concealed bady of Tharmostatic shower mixer with 3 way diverter of make Jaquar (Cat. No. ALD-683) or equivalent, port kit of make Jaquar (Cat. No. ARI-39683K) or equivalent with exposed bath & shower mixer with provision for connection for exposed shower pipe and hand shower of Jaquar (CAT no. SHA-1217F) or equivalent with Octane slider Overhead shower 300x210 mm Rectangular shape Tri Flow (Rain, Grain & Mist spray) ABS body with Rubit cleaning system of Jaquar (CAT no. OHS-CHR-1745 or equivalent as with Hand shower 120 mm Round shape multi flow of Jaquar (CAT no. HSH-CHR-1731) spire bath Tub spout with wall flange of Jaquar (SPE-101429) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list as per approved by Engineer in charge.	8.00	each	47444.30	379554.00
18.11	Providing and fixing C.P. Brass Over head Shower Round Shape Single Flow with Air Effect (ABS Body & Face Plate Chrome Plated) with Rubit Cleaning System of Jaquar Make CAT No OHS-1755 and Shower Arm 20mm dia. & 450mm Long Round Shape with 90˚ Bend for Wall Mounted Showers with Flange Jaquar Make CAT No. SHA-479L450 and CP Brass Concealed Body for Single Lever Diverter 40mm of make Jaquar (Cat. No.ALD-075)with Aspire bath Tub spout with wall flange of Jaquar (SPE-101429) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list as approved by Engineer in charge.	45.00	each	11408.10	513365.00
18.12	Providing & fixing Soap dispenser with glass bottle (Make-Jaquar Cat No. AKP-35735P or equivalent	8.00	each	1649.00	13192.00

	premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list of approved quality as per direction Engineer-in-charge.				
18.13	Providing & fixing Round shape tumbler holder (Make-Jaquar Cat No. AKP35741P or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list of approved quality as per direction Engineer-in-charge.	166.00	each	967.10	160539.00
18.14	Providing & fixing Stainless Steel Soap dish (Oval Range) make Jaquar Cat-No. AKP-35731P or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list of approved quality & brand as per direction Engineer-in-charge.	166.00	each	945.10	156887.00
18.15	Providing & fixing towel rack (Convex Range) 600mm long without lower hanger of make Jaquar Cat-No. AHS-1581H or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list approved make & quality complete with CP brass screws as per direction Engineer-in-charge.	8.00	each	4428.60	35429.00
18.16	Providing & fixing towel rack 600mm long without lower hanger but with 3 hooks of make Jaquar Cat-No. CPA-1181FH or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list approved make & quality complete with CP brass screws as per direction Engineer-in-charge.	169.00	each	3182.15	537783.00
18.17	Providing and fixing Stainless Steel toilet paper holder of Jaquar make (Cat. No. ACN-1153S) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list. in complete as per direction by Engineer-in-charge	8.00	each	1416.60	11333.00

18.18	Providing & fixing Toilet Paper Holder (Jaquar make Cat No.CPA-1151) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list standard & design all complete approved by Engineer-in-Charge.	172.00	each	998.60	171759.00
18.19	Providing and fixing superior quality oval modern Glass capsule led mirror with touch sensor of ARC homes or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list of required shape and size as per direction of Engineer-in-Charge.	64.00	sqm	5802.60	371366.00
18.20	Providing and fixing Angle valve with Flange for basin mixer and geyser points makeJaquar make (Cat. No. ALI-85053) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list all complete as per direction of Engineer-in-charge.	40.00	each	1399.30	55972.00
18.21	Providing and fixing C.P. brass angle valve with Flange (Jaquar make Cat No. VGP-81053) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list standard & design all complete approved by Engineer-in-Charge. 15mm nominal bore	724.00	each	1091.35	790137.00
18.22	Providing & fixing CP Corner glass shelf with CP brass bracket, screw and guard rail of make Jaquar Cat-No. ACN 1173 or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list as per direction Engineer-in-charge.	162.00	each	1836.20	297464.00
18.23	Providing and fixing Stainless Steel grating of approved quality and Make. Square type with collar & cockroach trap all complete as per direction of Engineer-in-charge. 125 mm diameter	362.00	each	773.30	279935.00

18.24	Providing and fixing C.P. brass Wall Mounted Sink Mixer with Swivel Spout & Flanges (Make-Jaquar Cat No-ARI-39309) or equivalent premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list all complete as per direction of Engineer-in-charge. .	15.00	each	4596.20	68943.00
18.25	Providing and fixing CPVC Ball Valve in CPVC pipe including cutting and threading the pipe and making all complete this including CPVC solvent cement and testing of joints complete as per direction of Engineer-in-charge.20 mm dia	100.00	each	239.40	23940.00
18.26	Providing and fixing Stainless Steel floor door stopper double with rubber, with necessary screws etc. of premium model of Grohe, Kholer, Hindware limited (queo) etc. as per preferred make list all complete as per direction of the Engineer-in-Charge.	267.00	each	288.35	76989.00
18.27	Providing and fixing 12mm thick clear toughened glass in doors, windows, ventilators, railing, partitions, frameless shower encloser etc. with beading/EPDM rubber / neoprene gasket, stainless screws etc. complete as per direction of Engineer-in-charge.	32.00	sqm	3641.30	116522.00
18.28	Providing and fixing Stainless Steel Glass Door H-Type Handle of size 32X350X450 mm of approved brand and manufacture, including providing and fixing and making necessary holes etc. for fixing required fittings, all complete as per direction of Engineer-in-charge.	8.00	Set	4228.70	33830.00
18.29	Providing & fixing Stainless Steel glass door lock with strike box (OZONE) code OPL-4A/4B-N-S STD SSS, complete as per direction of Engineer in Charge.	8.00	each	2731.95	21856.00
18.30	Providing and fixing frosted film as glazed portion and glazed doors complete as per directions of Engineer-in-Charge.	20.00	sqm	746.80	14936.00

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

18.31	Granite work gang saw cut (mirror polished and machine cut) of thickness 18 mm for wall lining (veneer work), backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the shade (To be secured to the backing by means of cramps, which shall be paid for separately).				
18.31.1	Granite of colour Jet black, cherry/ruby red 18 mm thick (slab area above 0.50 sqm)				
18.31.1.1	Area of slab over 0.50 sqm	79.00	sqm	6256.55	494267.00
18.32	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels.				
18.32.1	Korean marble Stone				
18.32.1.1	Area of slab Under/over 0.50 sqm	138.00	sqm	7385.55	1019206.00
18.33	Providing and laying tile of size 400x400x12 mm duratech tile of kajaria or equivalent having water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in out door floors such as footpath, court yard multi models etc., laid on 20 mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc.	841.00	sqm	1646.80	1384955.00

	complete as direction of Engineer-in-Charge.				
18.34	Providing and laying tile of size 600x600x12 mm duratech XT of kajaria or equivalent having water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in out door floors such as footpath, court yard multi models etc., laid on 20 mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as direction of Engineer-in-Charge.	1450.00	sqm	1846.13	2676889.00
18.35	Providing and Fixing horizontal level suspended metal ceilings comprising of Metal works V-P 500 Hook-on baffle system manufactured by Knauf Ceiling Solutions or equivalent with Rectangular vertical baffle blades made of Aluminium (Grade AA 3xxx, H14 temper) in coated thickness of 0.7mm ± 0.08mm as per IS:2676 (1981), post coated to Global White colour, suitable for architectural finishes and Interior applications, with single grid system and suitable spacing between baffles. The baffle width shall be 50mm, height shall be 100mm, length shall be 3000mm. The on-center spacing of baffles shall be 150mm (clear space between baffles 100mm). The baffles shall have plain unperforated finish with square edge, hook-on edges with suitable upturns. The baffles shall be electro statically powder coated using RoHS compliant pure polyester powder to achieve coating thickness ranging from 60-80 microns. The powder coating shall pass Salt Spray Test for 750 Hours as per ASTM B117, QUV –A Test	292.00	sqm	2439.50	712334.00

	for 1000 hours as per ASTM G-154 – (Cycle–1) and Humidity test for 1000hours as per DIN 50017. The powder coating shall have an adhesion of GT0 as per EN ISO 2409. The shade variation across batches shall be delta E<1 using Excite/BYK Gardner instrument and gloss level of 25±5% at 60˚ as per ASTM D523. The grids shall comprise primary U-shaped slotted carrier bars of 120gsm galvanised steel (GI) of 3000mm L x 43mm H x 30mm W x 1.5mm T. Accessories shall include baffle connector (GI), baffle face cover (GI) – RAL shade, carrier bar splice (GI), carrier spring (SS), wall anchor (GI).				
18.36	Providing & Fixing of KNAUF or equivalent Mineral Fibre Acoustical Suspended Ceiling System with 15mm thick Sierra OP Tegular 15/90 Edge Tiles with Silhouette 15mm exposed grid. The tiles shall have smooth laminated visual with Humidity Resistance (RH) of 95%, NRC 0.85 (Average value of Absorption Co-efficient readings taken at 250 Hz, 500 Hz, 1000 Hz and 2000 Hz) as per ASTM C423 standard, CAC of 25db as per ASTM E1414, Light Reflectance ≥86% as per ASTM E-1477, Thermal Conductivity λ = 0.040 W/mK, Colour Global White, Fire Performance of class A2-s1, d0 according to EN 13501-1 with 15mm Tegular 15/90˚ edge and 8mm drop in module size of 600 x 600mm. The scrim on the face of the tile shall be cleanable and classified as ISO 14644-1 clean room class 5. It shall be suitable for Green Building application, with Recycled content of 43% VOC Emissions (French) class of A+. The tile shall have Environmental Product Declaration as per ISO 14025 and EN 15804+A2.				

	The tile shall comply with Indoor Air Comfort Gold requirements, version 7.0 (2020) and this certification shall ensure compliance with LEED & DGNB. The tile shall have certifications from GRIHA and GreenPro thereby confirming that it is an environment friendly product.				
18.36.1	SUSPENSION: The tile shall be laid on KNAUF or equivalent Silhouette 38 profile grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour with mitred ends & "bird's mouth" notches to provide mitred cruciform junctions colour global white (Matching to tile color). Grid shall have double stroke rotary stitching on all T sections i.e., the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm (all sections). The deflection loading of the system shall be 7.9 kg/m2 (as per standard installation layout mentioned below) and main beam tested as per ASTM C635 (Deflection limit less than L/360) with a deflection loading of 9.5 kg/m. The end details of the cross tee shall be made of pre hardened steel clip fixed to the ends of the cross tee to provide double locking between "cross tee to cross tee" and "cross tee to main beam". All main beam to main beam and cross tee to cross tee connection shall have a pull-out strength of more than 100kg. The T Sections shall be made of 90 gsm as per IS 277 (2003) pre-painted steel with baked polyester paint of 0T bending capability.	22.00	sqm	2217.20	48778.00
18.37	Providing and fixing of Twilight Series Vertical / Horizontal Zebra Blinds of AEROLUX, D'DECOR, DECK, HUNTER DOUGLAS, Vista or substantially equivalent make in band width 7.5 cm - 12 cm,	47.00	Sqm	1893.40	88990.00

	made up of 100% polyester. Twilight Blind tube made of aluminium with a min. diameter of 36mm, bottom rail made of powder coated aluminum having minimum weight 390 gm/meter fitted with end caps in colour matching to the fabric. Aluminium profile should have the control clutch drive unit engineered heavy duty chain drive pulley operating system consisting of gear clutch housing and locking plug containing minimum 6 ribs and inserted at minimum of 38mm into roller tube mounting hardware brackets, universal brackets including end plug bracket with lockdown retainer device. Ball chain shall be of 2mm diameter cord with plastic balls made of U.V stable compound moulded to form an endless ball chain to be used for raising or lowering action of shade. Item also includes repair & maintenance for 2 years along with warranty from OEM. All complete as per satisfaction & direction of Engineer-in-Charge. Note : Area of window opening shall be measured for payment purpose				
18.38	Providing and fixing laminated wooden flooring of PERGO/ ACTION TESA or equivalent of approved shade and design of abrasion capacity AC-4 made up of 12 mm thick high density fiber board having even core density, laminated with European made impregnated décor paper dully faced with anti abrasion layer of Aluminum oxide impregnated tissue and balanced with impregnated base paper. The product shall have an isometric locking profile made form a 5 mm spindled profiling head.				
18.38.1	The locking profile shall be wax coated to prevent moisture/seepage and tropical zed with an anti-bacterial surface treatment. The	122.00	Sqm	2223.70	271291.00

	flooring strips/tiles shall be 4 feet long and 8 inches wide fixed on an under day base of 2 mm thick layer of expended Polyethylene (EPE) foam having a density of 24 kg./cum. The foam shall be fixed after governing the exiting floor with 0.2 mm thick PE sheet of 130 GSM. The rate shall include the cost of fixing specified approved beading at wall & floor joints and 63x18 mm skirting with headless nails & adhesive etc. as required complete as per direction of Engineer-in-Charge. (only finished floor area shall be measured for the purpose of payment.				
18.39	Providing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm at UPVC window all complete.				
18.39.1	Stainless steel (grade 304) wire gauge of 0.5 mm dia wire and 1.4 mm aperture on both sides	603.00	sqm	676.00	407628.00
18.40	Providing and fixing glazing in uPVC door, window, ventilator shutters and partitions etc. complete as per the architectural drawings and the directions of engineer-in-charge .				
18.40.1	With float glass panes of 5 mm thickness (weight not less than 12.50 kg/sqm)	1026.00	sqm	805.50	826443.00
18.41	Credit for taking away of old PVC cistern including all fittings etc. and the like received from the dismantling. The material so received shall be the property of contractor after dismantling duly weighed / measujred before removing from the site in the presence of Engineer-in-Charge or his authorized representative all complete as per direction of Engineer-in-Charge.	180.00	kg	-31.30	-5634.00

18.42	Credit for taking away dismantled wooden doors shutter without chowkhat including fittings etc. The material so received shall be the property of contractor after dismantling duly weighed /measured before removing from the site in the presence of Engineer-in-charge of his authorised representative all complete..	275.00	each	-240.85	-66234.00
18.43	Credit for taking away of old P.V.C. water storage tank and the like received from the dismantling. The material so received shall be the property of contractor after dismantling dully weighed / measured before removing from the site in the presence of Engineer-in-charge or his authorized representative all complete as per direction of Engineer-in-charge.	1000.00	kg	-31.30	-31300.00
18.44	Credit for taking away of S.C.I. pipes and fittings, C.I. pipes and fittings centrifugally cast (spun) iron pipes and fittings, G.I. pipes and fittings, steel doors, windows, ventilators grill, steel bars, barbed wire, M.S. Shutter etc. and the like received from dismantling. The material so received shall be the property of contractor after dismantling duly weighed / measured before removing from the site in the presence of Engineer -in-charge of his authorised representative all complete.	1000.00	kg	-28.45	-28450.00
				Total Rs.	**108691114.00**

Addition.....Nil.....,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (P) E.E.(Civil)

PART- C

ELECTRICAL WORK

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction...…Nil...,…….
Overwriting…..Nil.....

PROFORMA OF SCHEDULES

(Separated Performa for Civil & Elect. Works in case of Composite Tenders)

Name of Work:- **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

SCHEDULE 'A'

Schedule of Quantities (as per PWD-3) As per Page No. 170 to 215

SCHEDULE 'D'

Extra schedule for specific requirements/document for the work, if any: As attached in tender form

SCHEDULE 'E'

Reference to General Conditions of contract – Applicable GCC is GCC Maintenance works 2023, as modified and corrected up to previous day of last date of submission of bids.

Name of Work: **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

Estimated cost of work : **Rs. 4,73,83,043/-**

i) Earnest money : As per Part-B civil component.

ii) Performance Guarantee : As per Part-B civil component.

iii) Security deposit : 2.5% of the tendered value

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS : Officer inviting tender: **Executive Engineer, Lucknow-I, CPWD, Lucknow.**

Definitions:

2(v)	**Engineer-in –Charge**	**Executive Engineer (E), Lucknow, CPWD, Lucknow.** **Chief Engineer(Lucknow), Lucknow**
2(vii)	Accepting Authority	
2(x)	Percentage on cost of materials and labour to cover all overheads and profits	15%
2(xi)	**Standard Schedule of Rates:**	
	Electrical Items of Work:	Schedule of rates DSR– 2025 & Market rate with correction slip upto last date previous to date of submission of tenders
2(xii)	Department:	Central Public Works Department
9(ii)	Standard CPWD contract Form GCC 2023, CPWD Form 7/8 as modified & Corrected upto:	GCC 2023 for maintenance works, CPWD Form-7/8 as amended/modified up to previous day of last date of submission of the bids.

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Clause 1	i)	Time allowed for submission of Performance Guarantee, Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance	**Same as prescribed in Part-B civil component**
	ii)	Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above	**Same as prescribed in Part-B civil component**
Clause 2		Authority for fixing Compensation under Clause 2	**Chief Engineer (Lucknow), CPWD, Lucknow.**

Clause 5 **Same as prescribed in Part-B civil component**

Clause 6 : Computerized Measurement Book/ Electronic Mode of Measurement : EMB through CPWD ERP Portal.

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. 39.48 lacs.**

Clause 7A

Whether clause 7A shall be applicable Yes (As per Part-B Civil component)

Clause 8 Competent Authorities to inspect and issue Part/Final Completion Certificate **As per Civil Component**

Clause 8A Authority to decide compensation on account if contractor fails to submit completion plans. **As prescribed in Civil Component**

Clause 10A

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

Annexure sheet attached as per Page No. 160-162

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

Clause 10 C

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

Clause 10 CC **Not Applicable**

Clause 11

Specifications to be followed for execution of work CPWD General Specifications for Electrical Works Part I Internal - 2023/ Part-II External-2023, Part-V Wet Riser & Sprinkler System Part-VI – Fire detection & Alarm system -2018 as amended last date previous to date of submission of tender.

Clause 16

Competent Authority for deciding reduced rates **Same as prescribed in Part-B civil component**

Clause 18

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

Addition.....Nil....,,.....
Deletion…….....Nil....……..
Correction...…Nil...,…….
Overwriting…..Nil.....

Annexure sheet attached as per Page No. 141

Clause 19C	**Authority to decide penalty for each default**	**Same as prescribed in Part-B Civil Component**
Clause 19D	**Authority to decide penalty for each default**	
Clause 19G	**Authority to decide penalty for each default**	
Clause 19K	Employment of skilled/semi skilled workers.	

Clause 25 **Same as prescribed in Part-B Civil Component**

Clause 32 **Requirement of Technical Representative(s) and Recovery Rate**

Sl. No.	Minimum Qualification of Technical representative	Discipline	Designation (Principal Technical/ Technical representative	Minimum experience (Years)	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of Clause 32	
						Figures	Words
1	Graduate Engineer Or Diploma Engineer	Electrical	Planning /quality/billing Engineer	2 Or 5 respectively	1	Rs. 15,000/- per month per person	Rs. Fifteen Thousand per month per person
2	Graduate Engineer Or Diploma Engineer	Electrical	Project Planning /quality/billing Engineer	2 Or 5 respectively	1	Rs. 15,000/- per month per person	Rs. Fifteen Thousand per month per person

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder with minimum 10 years relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Clause 38

(i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2025 printed by C.P.W.D.

(ii) Variations permissible on theoretical quantities:

(a) Cement
For works with estimated cost put to tender not more than Rs. 25 Lakh
For works with estimated cost put to tender more than Rs. 25 Lakh

(b) Bitumen All Works

(c) Steel Reinforcement and structural steel

Sections for each diameter, section and category

(d) All other material

Same as prescribed in Part-B Civil Component

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Annexure-II

ON NON-JUDICIAL STAMP PAPER OF MINIMUM RS. 100

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

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

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

OR**

Whereas the Executive Engineer …….. (name of division) ……., CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number ……..... with …….....(name and address of the contractor) …….. (hereinafter called "the Contractor") for execution of work …… (Name of work) ……... The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. ……..……. (Rupees …… only) valid upto …….. (date)..…… as Performance Guarantee/Security Deposit/Mobilization Advance from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

2. We, …… (indicate the name of the bank) ……. (herein after referred to as "the Bank"), hereby undertake to pay to the Government an amount not exceeding

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction...…Nil...,…….
Overwriting…..Nil.....

Rs. …….. (Rupees……. only) on demand by the Government within 10 days of the demand.

3. We, ……(indicate the name of the Bank) ……, do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. …….. (Rupees …….only)

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

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

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

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

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

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

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

Date .....

Witnesses:

1. Signature…… Authorized signatory

   Name and address Name

   Designation

   Staff code no.

2. Signature ……. Bank seal

   Name and address

* Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Annexure- 'C'

AFFIDAVIT

I / We have submitted a bank guarantee for the work _____
(Name of work)
Agreement No. _____dated_____ from_____ to_____

(Name of the Bank with full address) _____

the Assistant Engineer _____

(Name of Division) with a view to seek exemption from payment of security deposit in cash. This bank guarantee expires on _____ I / We undertake to keep the validity of the bank guarantee intact by getting it extended from time to time at my / our own initiative upto a period of _____ months after the recorded date of completion of the work or as directed by the engineer-in-charge.

I / We also indemnify the Government against any losses arising out of non – encashment of the bank guarantee if any.

Note :- The affidavit is to be given by the executants before a first class Magistrate

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

ANNEXURE

Clause- 10 –A & 18

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

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

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

A.E. (E) (P)

Name of Work:- Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).

Eligibility condition for Associate agency for execution of Pdg. E.I. & Fans, compound light & cable work

The main agency is also eligible to carry out the IEI work provided he possess valid electrical license in his own name. In the absence of above, the main agency has to associate suitable agency for carrying out IEI work. In that case, the associate agency shall also be registered/enlisted in CPWD in composite category in appropriate class and should have a valid electrical license. The Registration/enlistment shall be valid on the date of MOU entered between main agency and associate agency.

The main contractor/agency has to submit detail of such agency, to be associated to the Engineer-in-charge (of I.E.I. Works) immediately on the date of start of work. The associate agency shall be approved by Engineer-in-charge (of IEI Work). In case the main contractor intends to change associated agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge (of IEI Work). The new agency/agencies shall also have to satisfy the laid down eligibility criteria mentioned above. In case Engineer-in-charge is not satisfied with the performance of any agency, he can direct the main contractor to change the agency executing such items of work and this shall be binding on the contractor.

Addition.....Nil....,,.....
Deletion…….....Nil....……..
Correction...…Nil...,…….
Overwriting…..Nil.....

A.E. (E) (P)

Eligibility condition for Associate agency for execution of SITC of LAN System [SH-2]

The main agency has to associate the OEM/specialized agency of LAN system

The associate specialized agency should have successfully completed works, as mentioned under during last 7 years ending previous day of last date of submission of tender.

(i) Three similar works each of value not less than 40% of estimated cost of LAN work.

OR

(ii) Two similar works each of value not less than 60% of estimated cost of LAN work.

OR

(iii) One similar works each of value not less than 80% of estimated cost of LAN work.

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7 % per annum; calculated from the date of completion to previous day of last date of submission of tender.

Similar work shall mean works of "SITC of LAN system".

The main contractor/agency has to submit detail of such associate agency to Engineer-in-charge (**SITC of** LAN system) with in fifteen days from date of start of work. The associate agency shall be approved by Engineer-in-charge (**SITC of** LAN system). In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge (**SITC of** LAN system). The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-charge is not satisfied with the performance of any agency, he can direct the main contractor to change the agency executing such items of work and this shall be binding on the contractor.

However, the composite category contractor shall also carry out himself work without associating any specialized agency provided: -

a) He fulfils the prescribed eligibility criteria respectively for these work(s).

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Eligibility condition for Associate agency for execution of SITC of VRV/VRF System [SH: 3]

The main agency has to associate the OEM/specialized agency of VRV/VRF System

The associate specialized agency should have successfully completed works, as mentioned under during last 7 years ending previous day of last date of submission of tender.

(i) Three similar works each of value not less than 40% of estimated cost of VRV/VRF work.

OR

(ii) Two similar works each of value not less than 60% of estimated cost of VRV/VRF work.

OR

(iii) One similar works each of value not less than 80% of estimated cost of VRV/VRF work.

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7 % per annum; calculated from the date of completion to previous day of last date of submission of tender.

Similar work shall mean works of "SITC of VRV/VRF system".

The main contractor/agency has to submit detail of such associate agency to Engineer-in-charge (**SITC of VRV/VRF system)** with in fifteen days from date of start of work. The associate agency shall be approved by Engineer-in-charge (**SITC of VRV/VRF system).** In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge (**SITC of VRV/VRF System).** The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-charge is not satisfied with the performance of any agency, he can direct the main contractor to change the agency executing such items of work and this shall be binding on the contractor.

However, the composite category contractor shall also carry out himself work without associating any specialized agency provided: -

a) He fulfils the prescribed eligibility criteria respectively for these work(s).

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Part- SH- 2 & 3

MEMORANDUM OF UNDERSTANDING [M.O.U] BETWEEN

1] M/S [Name of the firm with full address]
Enlistment Status
Valid Upto:

[Henceforth called the main contractor]

And

2] M/S [Name of the firm with full address]
Enlistment Status
Valid Upto:
[Henceforth, called Associated Contractor]

Name of Work : - **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

[Electrical component only] as per schedule, specifications, terms and conditions of the tender.

We state that M.O.U. between us will be treated as an agreement and has legality as per Indian Contract Act (amended up to date) and the department (CPWD) can enforce all the terms and conditions of the agreement for execution of the above work. Both of us shall be responsible for the execution of work as per the agreement to the extent of this MOU allows. Both the parties shall be paid consequent to the execution as per agreement to the extent this MOU permits.

We have agreed as under:

1- The associated contractor shall be liable for disciplinary action if he failed to discharge the action(s) and other legal action as per agreement besides forfeiture of the security deposit.

2- All the material, machinery and equipment's, tools and tackles required for execution of the electrical works as per agreement shall be the responsibility of the associated contractor.

3- The site staff required for the electrical work shall be arranged by the associated contractor as per terms and conditions of the agreement.

SIGNATURE OF MAIN CONTRACTOR

SIGNATURE OF ASSOCIATED CONTRACTOR

Date

Date

Place

Place

COUNTERSIGNED
EXECUTIVE ENGINEER (E)

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Part- SH- 2 & 3

WILLINGNESS CERTIFICATE

Name of Work: **Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).**

I hereby give my willingness to work as associated contractor for the above mentioned work.

I will execute the work as per specifications and conditions for the agreement and as per direction of the Engineer-in-charge. Also, I will employee full time technically qualified supervisor for the works. I will attend inspection of officers of the department as and when required.

Date : Signature of Contractor

Addition.....Nil....,,.....
Deletion…….....Nil....……..
Correction..…Nil...,…….
Overwriting…..Nil.....

A.E. (E) (P)

Additional Conditions for E.I. & Fans work.

1- The work shall be carried out strictly in accordance with CPWD General Specifications for Internal Electrical Works Part I Internal - 2023, General specification for External Electrical work Part II -2023, Part III- Lift & Escalators-2003, Part IV- Sub-station- 2013, Part-V- Wet riser & Sprinkler systems-2020, Part-VI – Fire Detection & Alarm system-2018, Part VII- DG sets-2013, Part VIII- Gas Based Fire Extinguishing system-2013, as amended last date previous to date of submission of tender. as amended upto date and as per instructions of the Engineer-in-Charge including as below and nothing will be paid extra.

(a) All material shall be got approved from Engineer-in-Charge before use. One sample flat/Bay /Room shall be made for approval of final location of switch boards/ fittings etc. and then only work shall be executed in other flats/bays/Room.
All damages done to the building during execution of Electrical work shall be the responsibility of the contractor and the same will be made good immediately at his own cost to the satisfaction of the Engineer-in-Charge. Any expenditure incurred by the department in this condition shall be recovered from the contractor and decision of the Engineer-in-Charge about recovery shall be final.

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

(c) CONDUIT LAYOUT shall be prepared by contractor and got approved before execution of work. Minimum No. of Junctions to be kept, & if required junctions to be kept underneath the fitting locations in corridor/rooms so that junctions are not visible after fittings are fixed/in position. Drop of conduit shall be well planned w.r.t. location of fitting/D.B. and criss crossing to be avoided. All chases in walls shall be cut using wall grooving machine. For this purpose electricity shall be arranged by contractor.

(d) Any conduit which is not to be wired by the contractor shall be provided with GI fish wire for wiring by some other agency subsequently. Nothing extra shall be paid for the same.
Termination of multi-stranded conductors shall be done using crimping type thimbles at both the ends. Nothing extra shall be paid for the same.

(e) For Submain Wiring, Colour Code for different phases and Neutral (R.Y.B. black) to be maintained. While circuit wiring, wiring for fan point, wiring for light point shall be done with different colours for easy identification. Wiring for neutral shall be done with black colour and all connections to fans & fittings wherever visible shall be made with white PVC insulated copper wire or wherever cover sleeve may be provided. At Switch board, Switch shall be fixed in a logical manner w.r.t. fittings layout.

(f) Unless specifically approved by Executive Engineer (E.), loose wire box, above DB shall not be provided however DB's shall have loose wire box of same make.
All connections to MCB's shall be made using thimble/lugs.

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(g) All DB's i/c incoming & outgoing MCB's shall be suitably numbered for location/circuits. DB shall be fixed in recess suitably (30 mm. approx. projected from unplastered wall) to ease opening of door. Top of DB to match with door frame height as per site conditions.

(h) Phenolic laminated sheet shall be of Egg white colour, and shall be filed/rounded at edges and of minimum 3mm thick wherever required.

(i) All fittings and fans should be properly earthed through the protective conductor.

Provision of earth bars in main boards, earth terminal block in DB's & earth studs in all metal boxes shall be made, connection to this stud shall be crimped.

A clamp type termination should be made in the termination of earth strips (where provided) to pipe electrodes to provide surface type contact.

(j) The earthing shall be carried out in the presence of the Engineer-in-charge or his authorized representative.

(k) The size at switch box for providing Modular Plate type Switch/Sockets shall be properly settled to take care of all necessary switches/screws/fan regulators. Blanking plate if required shall also be provided at no extra cost.

(l) For point wiring in steel conduit all piano type switch or all modular type switches/sockets/telephone outlets/T.V. outlets shall be of only one make.

(m) The contractor shall make his own arrangement at his own cost for electrical/ general tools and plants required for the work.

(n) All LED light fittings should have minimum 5 years warranty, warranty certificate to be submitted by agency on OEM letter head regarding this.

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

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

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

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

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

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

4- Issue of material to the contractor wherever stipulated, shall be according to the requirement at site from time to time depending upon the program of work.

5- The contractor shall have to return the surplus/unused material supplied by the department for use on work at the place of original supply failing which the recovery shall be made at the recovery rate as given the list stipulated materials, if applicable.

6- Cement for this bonafied work is to be arranged and used by the contractor himself and nothing extra will be paid on this account.

7- The contractor shall make his own arrangement at his own cost for electrical / general tools and plants required for the work.

8- The rates of all items of work shall unless clearly specified otherwise, includes the cost of all labour, materials and other input involved in the execution of work.

9- Central / State Sales Tax / Contract Tax / GST etc. should be included in the rates tendered. Statutory deductions of contract tax at source shall be made while releasing payment through running/final bills. A certificate specifying the rate and amount of deduction shall however be issued. No Form 31/32 (road permit) shall be issued by the department. The road permit shall be arranged by the tenderer at his own.

10- All U.G. Cable work shall be got inspected and measurements lest checked by the Assistant Engineer in charge of work and his authorized representative before filling up the trenches, failing which work remain subject to 100% recheck at the risk and cost of the contractor.

11- All U.G. Cables before laying shall be got tested for continuity in presence of the authorized representative of the Engineer-in-Charge.

12- Route of the U.G. Cables shall be got approved from the Engineer-in-Charge or his authorized representative.

13- So far operation of new sub clause 10 CC of contact for percentage for material and labour is concerned, it shall be regulated as follows: -

(a) In the case of underground cable work the component of material and labour shall be taken as 60% and 40% respectively.

14- Earthing shall invariably be done in the presence of the Engineer-in-Charge pr his authorized representative.

15- Contractor shall preserve the copies of invoices, test certificates; gate passes etc. to prove the genuineness of material / purchases which are used at site as per agreement

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16- Notwithstanding the schedule of quantities, all items of interrelated works consider necessary to make the installation complete and operative are deemed to be included shall be provided by the contractor at no extra cost.

17- The secured advance as applicable shall be allowed.

18- Completion Plan & Test Certificate: Contractor shall submit completion plan for Internal and External electrical services **(in triplicate)** failing which a recovery 0.1% of tendered amount shall be made from final bill. Contractor has to submit SLDs & layout plan in triplicate in Dwd. pdf & A0 size hard copies in triplicate duly signed and checked by the concerned JE/AE.

Test certificate for the work carried out shall also be submitted failing which recovery @3% of tender amount subject to maximum of Rs.500000/- shall be made from final bill.

19- Panels: Drawing of panel shall be submitted for approval within 30 days from award of work and fabrication to be taken up only after approval of such drawing.

20- Quantities indicated in Schedule of work are only tentative, contractor shall consult AE-in-Charge before procurement. Payment shall be made only for the quantities actually executed and measured.

21- Time Period: Contractor has to plan his activities, so that electrical work is to be carried out in close co-ordination with CIVIL work and in no case CIVIL work be delayed because of delay in electrical work and the work has to be completed accordingly.

22- The makes for items shall be as per list attached.

23- **Storage :-** Responsibility for storage space for execution of work shall be of main contractor.

24- **Power & Water Supply:-** Responsibility for supply of power & water for execution of work shall be of main contractor.

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Additional Condition for VRV/VRF System

1. Specification-: The work shall be executed as per CPWD's general specification for Electrical Works, Part-I-2023, Part-II-2023 (External) & general specification for HVAC - 2024. Indian Standards amended upto date and as per direction of Engineer-in-Charge. The additional specifications are to be read with above and in case of any variations, specifications given along with the tender shall apply.

2. Location-: The VRV AC system is to be installed at **NBSC LDA Colony, Kanpur Road, Lucknow** (UP) and the contractor is advised to visit the site before submission of their tender and ensure that equipment being offered by them shall be accommodated in the spaces available.

3. Terms of Payments:

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

   (i) No advance payment shall be made.

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

   (iii) 20% after completion of installation in all respect.

   (iv) Balance 10% will be paid after Testing, Commissioning & Handing Over to the department for beneficial use.

4. Rates-:
   The department will not issue Octroi exemption certificate.

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

6. Storage :- Responsibility for storage space for execution of work shall be of main contractor.

7. Power & Water Supply:-Responsibility for supply of power & water for execution of work shall be of main contractor.

ADDITIONAL TECHNICAL SPECIFICATION

General

1. The scope of this section comprises the design, supply erection, testing and commissioning of inverter technology-based Scroll Type VRF type system of air conditioning conforming to these specification/ Explanatory Note and in accordance with the requirements of Drawing and Schedule of Quantities. The prices quoted shall include all the equipment ancillary material as specified and all such items whatsoever and which may be required to fulfill the intent and purpose as laid down in the specification and the approved drawings. The contractor shall calculate equipment capacity based upon design parameters specified for the system design & verify all the quantities and sizes of refrigerant pipe, fitting, cables, control cable, pipes, insulation, indoor units, and outdoor units etc. before

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installation to avoid any shortfall or surplus. The tenderer shall also include all necessary civil work MS frame work for installation of outdoor and indoor units in VRF based air condition system. The cost quoted by tenderer shall also include the refrigerant gas & its charging for proper & specified functioning of air conditioning system. Civil work/ MS frame work for indoor and outdoor units related to VRF / Split AC equipments, all cuttings should be properly finished as existing surrounding. The installation of outdoor unit on the floor/ terrace of building should be checked up structurally & their mounting should be structurally safe for the outdoor unit to ensure in such a way that after installation.

a) Cutting of walls and floors/ ceiling.

b) Making holes.

c) Sleeves.

d) Foundation

2. The scope in the tender schedule also covers detailed designing of complete air-conditioning system based on inverter technology-based Scroll VRF air conditioner with air cooled outdoor units system capable of cooling and heating (reverse cycle) as per individual or season requirement suitable for operation on 415 V, 3 Phase, 50 Hz AC electric supply. The outdoor units shall have both cooling & heat pump mode, consisting of one / multiple outdoor unit with single circuit of refrigerant piping and multiple in door units of various types. Each indoor unit should have capability to cool or heat as per seasonal weather changes. This shall also include complete capacity calculation for indoor and outdoor units complete with CAD drawing, designing & layout of following.

(i) Outdoor units.

(ii) Indoor units.

(iii) Refrigerant piping

(iv) Condensate water piping & disposal.

(v) Power & Control Cables between Outdoor units & Indoor units.

3. While designing the system care should be taken to select outdoor units of suitable capacity based on design data provided below & to economize on available floor area for installation of outdoor units as well as optimum utilization of outdoor units and type of indoor unit taken into considerations. The indoor units should be designed based upon the heat load calculations for individual rooms / areas to be air- conditioner and over capacities should be avoided.

The design should also specifically take care of disposal of condensate drain water so that there is no leakage of condensate water inside the room as well in the route of condensate water pipe line. The layout of refrigerant piping is to be designed in such a way so that it should not disturb the aesthetic of the building/ room, inadvertent damage in the route of pipe should not occur in future & optimum length of pipe line for efficient air conditioning.

4. After completion of the work four sets of 'as erected/ commissioned drawing' of activities listed above shall be submitted. The work of air-conditioning outdoor and indoor units as specified in schedule of work is required to be carried out **at NBSC LDA Colony, Kanpur Road, Lucknow (UP)**. The specified design parameters are only tentative in nature, however, all efforts shall be made to achieve the following specified design parameters and if at any design stage need for higher capacity outdoor HP is required,

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necessary approval shall be accorded based on design analysis and discussions on the subject. In case of any deviation from the parameters specified below, the technical issues involved shall be brought to the notice of Engineer-in-charge for seeking necessary approvals to achieve these parameters. Engineer-in- charge, however, reserves the right to permit any deviations from the parameters as specified.

Outside summer condition:

43.3°CDB; 23.9°CWB
Monsoon: 35.0°CDB'
28.3°CWB Winter:
7.2°CDB' 5.0°CWB

Inside conditions summer: 23.8°C ± 1°C

Winter: 23.8°C ± 1°C

Note: 1 HP unit = 0.8 TR (Approximately)

5. The project of VRF air-conditioning of **NBSC LDA Colony, Kanpur Road, Lucknow (UP)** is required to be executed in time bound and professional manner. The equipment's involved in air-conditioning are complex in nature comprising of instrumentation, control and central management system. The job, therefore calls for highest order of technical expertise and also requirement of experience of air-conditioning installation with proven performance.

6. OUTDOOR UNIT

(i) The outdoor unit shall be factory assembled, weather proof casing (Material of construction of casing shall be vendor's standard design), constructed from heavy gauge GI sheets steel panels and coated with baked enamel finish. The outdoor unit shall be completely factory wired, tested with all necessary controls & filled with first charge of refrigerant before delivering at site.

(ii) The inverter technology based Scroll type VRF equipment should be capable so that refrigerant piping between indoor units and outdoor unit shall be extendable upto 165 m of equivalent length with maximum height difference between outdoor & indoor unit of 50m & level difference between two indoor units shall be maximum upto 15m. All the outdoor units comprising of multiple modules should have at least one inverter type compressor in each module.

(iii) The outdoor unit shall be factory tested and filled with first charge of refrigerant R-410A before delivering at site.

(iv) It should also be provided with duty cycling for Scroll compressors capable of changing the rotating speed of compressor by inverter controller to follow variation in cooling & heating loads & switching starting sequence for better stability and prolonging equipment life or similar features if available in Scroll will also be accepted.

(v) The unit shall be provided with its own microprocessor control panel with provision for integration with the building management system for Air-conditioning system if required.

(vi) The machine must have a sub cool feature to use coil surface more effectively through proper circuit / bridge so that it prevents the flushing of refrigerant from long piping due to this effect thereby achieving energy savings.

(vii) The outdoor unit should be fitted with low noise level and should not be more than 67 db(A) at normal operation when measured at a point 1 mtr. In front of the unit at a height

of 1.5 mtrs.

(viii) The outdoor unit should be fitted with low noise aero spiral design fan with aero fitting grill for spiral discharge airflow to reduce pressure loss and should be fixed with DC/AC fan motor for better efficiency.

(ix) In case of trouble occurs in an indoor unit (s), the continuous operation of system should be possible.

(x) The unit shall be designed in such a way that cleaning of drain Pan should be easy & inspection/ replacement of compressor should be easy.

(xi) The condensing unit shall be designed to operate safely when connected to multiple fan coil units.

7. Refrigerant Circuit

The refrigerant circuit shall include liquid and gas shut-off valves and a solenoid valve at condenser end.

The equipment must have inbuilt refrigerant stabilization control for proper refrigerant distribution. All necessary safety devices shall be provided to ensure the safe operation of the system.

8. Heat Exchanger

The heat exchanger shall be constructed with copper tubes mechanically bonded to aluminum fins to form a cross-fin coil. The aluminum fins shall be covered by anti-corrosion resin film. The unit shall be provided with necessary number of direct driven low noise level propeller type fans arranged for vertical discharge. Each fan shall have a safety guard.

9. Safety Devices

All necessary safety devices shall be provided to ensure safe operation of the system. Whatever safety devices are required shall be part of outdoor unit - high pressure switch, fuse, fan drive overload protector, fusible plug, crankcase heater, over load relay, overload protection for inverter-based technology.

The outdoor roof mounted units shall be provided in such a fashion that these do not affect the overall aesthetics and ambience of the building. If required these units shall be suitably camouflaged to give good aesthetic look. These provisions, however, shall be discussed, if required, at a later date and the prices for the same shall be worked out separately as extra item.

10. INDOOR UNITS

All indoor units as specified shall have; in general, noise levels less than 46 db. For critical applications noise levels below these limits may, however, be specified during design stage.

(i) Each unit shall have electronic control valve to control refrigerant flow rate respond to load variation of the room.

(ii) The address of the indoor unit shall be set automatically or through central controller in case of individual and group control.

(iii) The fan shall be dual suction, aerodynamically designed, Turbo, multi blade type, statically & dynamically balanced to ensure low noise and vibration free operation of

the system. The fan shall be direct driven type, mounted directly on motor shaft having support from housing.

(iv) The cooling coil shall be made out of seamless copper tubes and having continuous aluminum fins. The fins shall be spaced by collars forming an integral part. The tubes shall be staggered in the direction of airflow. The tubes shall be hydraulically/ mechanically expanded for minimum thermal contact resistance with fins. Each coil shall be factory tested at 21 kg/sqm air pressure under water.

(v) Indoor unit shall have cleanable type filter fixed to an integrally moulded / moulded plastic frame. The filter shall be slide in and neatly insertable type. It shall be possible to clean the filters either with compressed air or water.

11. Reflet Joints/ Header Joints

Supply & installation of the Y-Joint/Ref-net separation refrigeration pipe joints and header in the appropriate orientation to enable correct distribution of refrigerant. The Distribution Joints should be factory insulated with close cell nitrile rubber tubular sections of class O fire ratting.

12. Refrigerant Piping

(i) Before joining any copper pipe or fittings, its internals shall be thoroughly cleaned by passing a clean cloth via wire or cable through its entire length. The piping shall be continuously kept clean of dirt etc. while constructing the joints. Subsequently it shall be thoroughly blown out using nitrogen gas.

(ii) After completion of installation of the refrigerant piping, the refrigerant piping system shall be pressure tested using nitrogen gas at a suitable pressure as specified by OEM (Original Equipment Manufacturer). Pressure shall be maintained in the system for 48 hours. The system shall then be evacuated to vacuum of not less than 700 mm Hg and held for 24 hours.

(iii) The supplier of air-conditioning system shall choose sizes as designed and erect proper interconnections of the complete refrigerant circuit. The thickness of copper piping shall not be less than 18 SWG for pipes upto 19.1 mm and 16 SWG for larger dia.

(iv) The suction line pipe size and the liquid line pipe sizes shall be selected according to the manufacturer's specified diameter. All refrigerant pipes shall be properly supported and anchored to the building/structure using steel hangers, fasteners, brackets and supports which shall be fixed to the building/structure by means of inserts or expansion shields or anchor fasteners of adequate size and number to support the load imposed thereon.

(v) The refrigerant piping should be laid in such a way that it should not distort the interior of the room, wherever the refrigerant pipe has to be laid across the room, it should be laid in a concealed manner by making appropriate boxing arrangement matching with the interior of the room. All associated minor Civil Engineering works (like chasing on wall, ceiling & re-plastering & repainting etc.) related with the above items are included in the scope of work. The above scope does not include false ceiling wherever required.

(vii) Entire liquid and suction refrigerant pipe lines including all fittings, valves and strainer bodies, etc. shall be insulated with electrometric nitrile rubber as specified in BOQ.

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(viii) For proper drainage of condensate U trap shall be provided in the drain piping wherever required. All pipe supports shall be prefabricated and pre-painted slotted angle support, properly installed with clamps. The condensate drains pipe arrangement for disposal of condensate water be made in such a way that there should not be any leakages of condensate water inside rooms as well in the route of drain water pipe line & water should be discharged at the location jointly decided with Engineer-in-Charge of work. All associated Civil Engineering works as per requirement at site in above connection like making chase in the wall & restoring it original shape by re-plastering & repainting, etc. are included in the scope of work. The arrangement of drain-pipe shall be made in such a way that it should not affect the aesthetic of the building as well as is maintenance friendly & easily accessible.

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LIST OF PREFERRED MAKES FOR E & M

Preferred makes of materials to be used in the work are as under. In case of non availability of these makes, the Engineer-in-charge may allow use of alternative BIS makes of materials in the work. Non BIS marked materials may bepermitted by the Engineer-in-charge.

Sl.	Details of Materials/Equipment	Manufacturer's Name
	I.E.I, MCBDB & MCB, Cables and Wires	
1	FRLS PVC insulated copper conduct or single core cable for wiring. (ISI marked)	Finolex/ RR Kabel/ KEI/ Havells/ Polycab/ Grandlay/ Plaza Cables/ Anchor/ Bonton/ Paramount cables/ AKG/ Gloster/ Rallison/ Agilon
2	Modular switches, socket/ telephone socket/ cable TV socket/ data outlet socket/ fan regulator /GI boxes etc (Wiring accessories) /regulators etc.	Legrand (Arteor)/ Schneider electric (Zencelo)/ Wipro (Artisa Neo) /Hager (Insysta) /M.K (Honeywell)/ Havells (Murano) / ABB (Millenium)/ Anchor by Panasonic (Vision) / Indoasian
3	MS Conduit (ISI marked) with heavy duty MS conduit pipe accessories	BEC / AKG / RMCON (Note: The make of accessories shall be same that of conduit pipe and will comply to IS/4768 part 22003)
4	MCB, Isolator, Industrial plug Socket, RCCB, RCBO's, ELCB(ISI Marked/ IEC Compliant)	Schneider Electric/ Legrand/ Hager/ L&T (LAURITZ KNUDSEN)/ ABB /Seimens/ IndoAsian/ C&S/ Anchor by Panasonic /Havells
5	MCBDB & Loose Wire Box	Schneider Electric/ Legrand/ Hager /L&T (LAURITZ KNUDSEN)/ ABB/Siemens/ IndoAsian/ C&S/ Havells
6	Change Over Switch	L&T (LAURITZ KNUDSEN)/ Havells/Hager/C&S
7	Automatic Transfer Switch(ATS)	Asco/ Russel/ Socomac/ Hager/ ABB/L&T (LAURITZ KNUDSEN)
8	Armoured/ Unarmoured Telephone cable, Coaxial Cable	Delton/ Finolex/ RRKabel/ Havells/ Grandlay/ Plaza Cables/ Anchor/ Bonton/ Paramount cables/ JMW Kable/ AKG/ Rallison/ Agilon
9	PVC conduit (ISI marked) with heavy duty PVC conduit pipe accessories	AKG/ Norpack/ BEC/ Polypack/ Precision/ Anchor/ Polycab/ Pressfit
10	Selector Switch & Toggle Switch	Salzer/(L&T (LAURITZ KNUDSEN)/ Siemens/ Kaycee/ Rishabh/ ABB
11	PVC Trunking	MK (Honeywell) /Schneider Electric/ Legrand/ Pressfit
12	GI Pipe	Tata/Jindal(Hissar)/Prakash Surya
13	Paints	ICI/ Asian/ Berger
14	Terminal Blocks & Connectors	Elmax/ Wago/ Hensel/ Connect well
15	Phenolic Laminated Sheet/Bakelite sheet	Hylam/ Formica (P-IGrade)/ Mylam/ Greenlam
16	Cat-6/ 6A Cable, Co-Axial cables, Telephone Wires & cable	Amp, Avaya /Beldon/ Legrand/ Molex/ Schneider/ Anchor / Plaza Cables/ Bonton/ AKG/ Rallison/ Agilon
	Fans & Fittings	
1	LED Fittings(ISI Marked/BEE Certified)	Wipro/ Phillips/ Crompton Greaves/Havells/ Bajaj/ Trilux/ Lighting Technology/ Orient Electric/ Jaquar/ Regent
2	Exhaust fan/Fresh Air Fan/ Inline Fan	Havells/ Crompton/ CG Power/ USHA/ Almonard/ Halonix/ Bajaj/ Polycab/ Orient Electric/Kruger/ Nicotra/

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		Humidien / GreenHeck/ Flantwood
3	BLDC Ceiling Fan/Wall Fan (ISI Marked /BEE Certified)	Havells /Crompton /CG Power/ USHA/ Anchorby Panasonic/ Halonix /Bajaj/ Polycab/ Orient Electric
4	Wall Bracket Fitting	Havells/ Crompton Greaves / Decon / Phillips/ Lighting Technology/ Luster/ Jaquar/ Anchor Panasonic/ Orient Electric/ Halonix/ Regent
5	LED lamp	Wipro/ Phillips/ Crompton Greaves/Havells/ Osram /Jaquar / Bajaj/ Polycab/ Orient Electric
6	Mirror Light	Jaquar / Philips/ Havells/ Crompton Greaves / Decon/ Wipro/ Regent
7	Geysers(BEE Certified)	Racold/ CG/ Havells/ Usha/ Venus/ AOSmith/ Jaquar/ Anchor by Panasonic/Bajaj
	Street Lighting	
1	LED post Top fitting	Wipro/ Phillips/ Crompton Greaves / Havells/ Keselec Schreder/ Lighting Technology /Bajaj/ Polycab/ Orient Electric/ Regent
2	LED Street light fitting	Wipro/ Phillips/ Crompton Greaves / Havells/ Keselec Schreder/ Lighting Technology/ Bajaj/ Polycab/ Orient Electric
3	LED street lights with inbuilt Solar panel and controller	Wipro/ Phillips/ Crompton greaves/ Havells/ Lighting Technology/ Bajaj/ Jaquar /Insta Power
4	Ornamental MS & G.I pole (factory finish)	Keselec Schreder- Ecopole3m ATG in GI with base plate/ Valmont/ Wipro/ Phillips/ Crompton greaves/ Bajaj/ Paruthi Engineers Pvt. Ltd./Luster/ Twinkle
5	Hot Dipped Galvanized Octagonal Pole (Factory finish)	Valmont/ Wipro/ Phillips/ Crompton Greaves /Bajaj/ Paruthi Engineers Pvt. Ltd./ Consoul /VSTP.
6	Polycarbonate Junction Box/ Enclosure	Hensel/ Spelsberg/ Naptune-Bals
7	XLPE Insulated PVC Sheathed Alum./Copper Conductor Armored Cable of 1.1 KV Grade	Finloex/ RR Kabel /KEI/ Havells/ Polycab/ Nicco/ Grandlay/ Paramount cables/ Gloster/ Plaza Cables/AKG/ Bonton/ Rallison/ Agilon
	Sub Station Equipment's	
1	LT panel/ Meter Panel Board/ Outdoor Feeder Pillar/APFC panels /Bus ducts	Tricolite Electrical Industries/ C&S/Application/ Sterling & Wilson/ MILESTONE/ Adlec Control System Pvt. Ltd./ Advance Panels & Switchgears Pvt. Ltd./ Indo Asian /Associated Switchgears & Projects Ltd/ Allied Engineers/ Shalabh/ Engineers & Engineers/ Pristine/ Excel Control System/ Expert Engineers/ R.P. Controls/ Coronet Engineers Pvt. Ltd./ Havells/ NEC/ SPC Electrotech Pvt Ltd/ ASES /MAK E-Products Pvt. Ltd./ Prestige Switchgears Pvt. Ltd./ Modern Switchgears (India)/ Asian Switchgear Pvt. Ltd./ Precision System Control
2	TTA Panels (LT distribution) **(OEM or their system integrator)**	Legrand, Schneider, Siemens, ABB, L&T (LAURITZ KNUDSEN)
3	Air insulated Rising Main/Bus Trunking	C&S/L&T (LAURITZ KNUDSEN)/ Schneider /Legrand /ABB/Siemens
4	Sandwich type bus Trunking/ Rising Main	C&S/L&T (LAURITZ KNUDSEN)/ Schneider /Legrand /ABB/Siemens

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5	Moulded Case Circuit Breaker (MCCB) Thermal Release/ Microprocessor Based (Ics = Icu =100%)	Schneider electric/ Legrand/ L&T (LAURITZ KNUDSEN) /ABB/ Siemens/ C&S / Havells /Indoasian
6	Power/Aux.Contactor3/4Pole	Schneider Electric/ Legrand/ Hager/ L&T (LAURITZ KNUDSEN)/ ABB/ Siemens /C&S/ BCH
7	Potential transformers /Current Transformers	Automatic Electric/ Gilbert & Maxwell/ Matrix/ Precise/ L&T (LAURITZ KNUDSEN)/ Kappa/ ESENNAR
8	LED Type Indicating Lamps/Push button	Schneider electric/ L&T (LAURITZ KNUDSEN)/ Siemens/ C&S /Vaishno/ Syska
9	Overload relays	Schneider Electric/ L&T (LAURITZ KNUDSEN)/ Siemens/ C&S /ABB
10	Conventional/ Electronic Digital Meters (A/V/PF/Hz/KW/KWH)	Conzerv/ L&T (LAURITZ KNUDSEN)/ Secure/ AE/ C&S
11	Timer	Schneider Electric/ Legrand/ Hager/ L&T(LAURITZ KNUDSEN) / ABB / Siemens/ C&S
12	Fasteners/GI Clamps	Hilti/ AFT/ Fisher/ Chilli/ GMGR
13	D.W. Corrugated HDPE Pipe(ISI Marked)	REX/ Triputi/ Duraline/ Gemini/ Durton/ Kisan/ Jain Irrigation/ Raksha
14	Transformer (Oil/Dry pipe)	Crompton /ABB/ Schneider/ Siemens/ VOLTAMP/ ESENNAR
15	HT Panel/ Ring main Unit	Compton/ Siemens/ ABB/ L&T (LAURITZ KNUDSEN) / Schneider
16	H.T. Cable (ISI marked)	KEI/ Havells/ Polycab/ Gloster/ Nicco/ Grandlay/ Finolex/ RR KABEL/ Rallison
17	HT End Termination/Cable Joining Kit	Reychem/ Denson/ CabSeal/ Safekei/ 3M
18	ACBs with Display	Schneider Elecric (MVS)/ Legrand (DMX3MP4) /L&T (LAURITZ KNUDSEN) (U-Power-OMEGA)/ ABB (Emax) PR122/ Seimens /C&S (WinMaster)
19	Rubber mat	Jyoti/ Deep Jyoti/ Premier (Duly ISI Marked)
20	Ammeter	Rishabh/ L&T (LAURITZ KNUDSEN)/ AE/ C&S
21	Voltmeter	Rishabh/ L&T (LAURITZ KNUDSEN)/ AE/ C&S
22	All Type Fire Extinguishers (ISI Marked)	Atasee/ Kalpex/ Lifeguard/ Ceasefire/ Minimax/ Safex/ GETECH
23	Capacitor and Reactors/APFC Relay	EPCOS/ L&T (LAURITZ KNUDSEN) /DUCATI/ ABB/ Siemens/ Schneider
24	XLPE Insulated PVC Sheathed Alum./Copper Conductor Armored/ Unarmored Cable of 1.1KV Grade	Finloex/ RR Kabel /KEI/ Havells/ Polycab/ Paragon (Electron)/ Universal /Nicco/ Grandlay/ Paramount cables/ V-marc/ JMW Kable/ Gloster/ Plaza Cables/ AKG/ Bonton/ Rallison
25	Cable Glands Double Compression with Earthing Links	Baliga Lighting/Comet/Cosmos /Dowells/ Gripwell
26	Bimetallic Cable Lug	Comet/ Dowells (Biller India)/ HexBrass (Copper Alloy India)/ Jainson/ Action
27	MS/GI Cable Tray	Pilco/ Slotco/ Pasco/ MEM/ BEC/ Steelways /Legrand/ RMCON/ Trueleader/ R.P. Controls/ Prestige Switchgears Pvt. Ltd.
28	Programmable Logic Controller (PLC)	Siemens/ Allen Bradley/ L&T (LAURITZ KNUDSEN) /ABB
29	Compact type sub station close along with Transformer, HT/LT switchgears,	ABB/ SIEMENS/ SCHNEIDER/ CROMPTON/ L&T (LAURITZ KNUDSEN) /VOLTAMP

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

	all functional & control/ Indicating equipments/ assemblies /Sub assemblies	
	Fire Fighting Equipments	
1	MS pipe	Tata/ Jindal (Hisar)/ Parkash Surya
2	GI Pipe	Tata/ Jinda l(Hisar)/ Parkash Surya
3	Forged Steel Fittings/flanges	Johnsons Industries/VS Forge/JK Forging/ Trueforge
4	Forged Steel Fittings and flanges (for welding joints)	VS Forge/ Rohini/ Kanwalforge/ Jhonson/ Trueforge
5	Pipe hangers	Chilli/ Hilti/ GMGR
6	Gun metal/ Brass Valve (ISI marked)/(Full way Globe valve/ Non return valve)	Sant/ Leader/ Advance/ Zoloto/ Kirloskar/ GETECH / Kartar
7	Butterfly/Sluice Valve (ISI marked)	Audco / Sant/ Leader/ Advance/ Zoloto/ Kirloskar/ GETECH/ Kartar
8	Check Valve (ISI marked)	Audco/ Sant/ Leader/ Advance/ Zoloto/ Kirloskar/ GETECH/ Kartar
9	Foot Valve (Cast Iron/Gun Metal)	Audco/Sant/ Leader/ Advance/ Zoloto/ Kirloskar/ GETECH/ Kartar
10	Y-Type Strainer	Audco/ Sant/ Leader /Zoloto/ Kirloskar/ GETECH/ Kartar
11	Fire/Sprinkler Pump/Terrace Fire Pump	Kirloskar/ KSB/ Grundfos/ WiloMather & Platt
12	Electrical Motor	ABB/ Siemens /Kirloskar/ Grundfos/ Crompton/ NGEF
13	Diesel Engine for fire pump	Cummins India/ Ashok Leyland/ KOEL/ Greaves
14	Couplings(Type-Type)	Lovejoy/ Fenner/ Dunlop
15	Anti Vibration Mounting	Kanwal Industrial Corporation/ Dunlop/ GERB/ Resistoflex
16	Pressure Switch (ISI marked)	SystemSensor/ Infoss/Danfoss/ Switzer/ Honeywell & Siemens
17	Pressure Guage (ISI marked)	HGuru/Fiebig/Dwyer
18	Double/Single Headed Landing Value (ISI marked)	Minimax/ NewAge/ Safeguard/ Lifeguard/ Padmini/ Omex/ Andex/ KalpEX/ Atasee/ GETECH/ Armorfire/ Kartar
19	Male Female Fire Hose Coupling (SS304)(ISI marked)	Minimax/ NewAge/ Safeguard/ Lifeguard/ Padmini/ Omex/ Andex/ KalpEX/ Atasee/ GETECH/ Kartar
20	First Aid Drum/ Fire Hose reels/Shutoff Nozzle (Gunmetal/ ABS)(ISI marked)	Minimax/ NewAge/ Safeguard/ Lifeguard/ Eversafe/ Padmini/ Omex/ Andex/ KalpEX/ Atasee/ GETECH/ Kartar
21	SS 304/ Gun metal Branch Pipe & Nozzle (ISI marked)	Minimax/ New Age/ Safeguard/ Lifeguard/ Padmini/ Omex /Andex/ Atasee/ GETECH/ Armorfire/ Kartar
22	Fireman Axe	Minimax/ New Age/ Safeguard/ GETECH
23	Water Flow Switch (FM/UL listed)	System Sensor/ Rapid Control/ Potter/ Switzer
24	Rust preventive polymeric 4mm thick tape for pipes directly buried in ground pipe protection pypkoat (AW4) wrapping (ISI marked)	Pypcoat/ Marphalt/ Rustech /Safex
25	Level controller & indicator (water) (ISI marked)	Auto Pump/ Cirrus Engineering/ Techtrol
26	Fire brigade inlet connection (ISI marked)	Minimax/ New Age / Safeguard / Lifeguard/ Padmini/ Omex/ Eversafe/ KalpEX/ Atasee/ GETECH/ Armorfire

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

27	Thermoplastic pipe for first aid hose reel (ISI marked)	New Age / Safeguard/ Lifeguard/ Padmini/ Omex / Eversafe/ KalpEX/ Atasee/ GETECH/ Kartar
28	Fire Sealent	Promat/ Birla 3M/ Hilti
29	Overload relays	Schneider Electric / Larsen & Toubro/ Siemens/ C&S / ABB
30	Power/ Aux. Contractor 3 /4 pole	Schneider Electric / Legrand /Hager/ L&T (LAURITZ KNUDSEN)/ABB/ Seimens/ C&S/ BCH
31	LED Type Indicating lamps/ Push Button	Schneider Electric / L&T (LAURITZ KNUDSEN)/ Siemens/ C&S/ ABB
32	LT jointing Kit/Termination	Raychem/ Denson/ Cap Seal/ Safekei/ 3M
33	RRL hose pipe (ISI Marked)	New Age/ Safeguard /Lifeguard/ Padmini/ Omex/ KalpEX/ Atasee/ GETECH/ Armorfire/ Kartar
34	Dry Battery	Exide/ Amar Raja/ HBL/ Pulse/Amco
35	Battery Charger	Statcon /Amar raja/ CDC/ AE/ Expofyn/ Thycon India
36	Epoxy Paint	ICI/ Asian/ Berger/ Nerolac
37	Air release Valve	Rb/ Tbs/ Cimbrio/ Zoloto
38	Analogue/digital Measuring Instruments (Voltmeter/Ammeter/ Energy meter/KW /PF/Multi-Function Meter)	AE/ Rishab/ L&T (LAURITZ KNUDSEN)/ C&S/ Conzerve
39	Aluminum/Copper power Cable/ Control cable (Armored /Unarmored)	Finloex/ RR Kabel /KEI/ Havells/ Polycab/ Nicco/ Grandlay/ Paramount cables/ Gloster/ Plaza Cables/ AKG/ Bonton/ Rallison
40	Cable gland and Lugs	Comet/ Dowells /Hax brass (Copper Alloy India) /Jainson/ Action
41	Solenoid Valve/Spray nozzle	Perker / HD / Tyco/ Emersion/ Kartar
42	Sprinkler	HD/Tyco/ Reliable/ Wormald/ Viking/ Atasee/ GETECH/ Kartar
43	Sprinkler head/Water Curtain Nozzle	Tyco/Viking/ Omex/ Newage/ Lifeguard/ GETECH/ Kartar
44	Steel Flexible Extension	Omex/ Newage/ Tyco / Lifeguard/ GETECH/ Kartar
45	Vibration Eliminator	Resistoflex/D waren/ Kanwal
46	Welding Electrodes	Advani/ ESAB/ L&T (LAURITZ KNUDSEN)
47	Deluge Valve	Tyco/ Viking/ HD
48	Cast Iron Valve	Kirloskar/ Kartar/ Kalpana/ Joloto /Audco/ Advance/ GETECH
	Fire Alarm System	
1	Addressable Manual call box	Notifier/ Johnson Control/ Honeywell /Siemens/ Bosch/ EST/ASES (Agni Suraksha) / Notofire
2	Addressable Type fault isolator	Johnson Control/ Honeywell/ Siemen/ Bosch/ EST (Edwards) /ASES (Agni Suraksha)/ Notofire
3	Strobe lights cum hooter	Notifier/ Johnson Control/ Honeywell/ Siemens/ Bosch /EST/ASES (Agni Suraksha)/ Notofire
4	Addressable control modules for hooter	Notifier/ Johnson Control/ Honeywell/ Siemens/ Bosch / EST /ASES (Agni Suraksha)/ Notofire
5	Addressable monitor module for flow switch	Notifier/ Johnson Control/ Honeywell/ Siemens/ Bosch / EST/ASES (Agni Suraksha)/ Notofire
6	Addressable type fire alarm control panel	Notifier/ Johnson Control/ Honeywell/ Siemens/ Bosch / EST /ASES (Agni Suraksha)/ Notofire
7	Network repeater panel	Notifier/ Johnson Control/ Honeywell/ Siemens/ Bosch / EST/ ASES (Agni Suraksha)/ Notofire

Addition.....Nil....,,.....
Deletion……...Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

8	Addressable multi sensing fire detector (combination of optical type smoke detector & ROR type heat Detector)	Notifier/ Johnson Control /Honeywell/ Siemens/ Bosch /EST /ASES (Agni Suraksha)/ Notofire
9	Fire Alarm / Fire Survival Cable	AKG/ Grandlay/ plaza/ Bonton/ Notofire/ Finolex RR Cable/ KEI/ Havells/ Rallison
10	Response Indicator	Notifier/ Johnson Control/ Honeywell/ Siemens /Bosch /EST/ASES (Agni Suraksha)
	Water Supply Pump Sets	
1	Mono Submersible Pump Set	KSB/ CG/ Kirloskar/ Grundfoss
2	Submersible Pump Set	KSB/ CG/ Kirloskar/ Grundfoss
3	GI pipe	Tata/ Jindal Hisar/Prakash Surya
4	Sluice Valve/ Check Valve/ Butterfly valve/Non Return Valve	Kirloskar/ Sant/ Leader/ Joloto/ Audco/ Advance
5	Submersible Cable	Fionlex/ RR Kable /KEI/ Havells/ Polycab/ AKG/ Grandlay/ Plaza/ Rallison
	VRV/VRF, Air Conditioner & Water Purifier	
1	Split/Window type Air Conditioner	Mitshubshi/ Toshiba /O General/ Daikin/ Hitachi/ Voltas/ Carrier/ Bluestar / LG/ Panasonic
2	VRV/VRF	Mitshubshi Electric/ Mitshubshi Heavy Industries/ Toshiba/ Bluestar / O General/ Daikin / Hitachi/ Voltas/ Carrier/ LG
3	Voltage stabilizer	Vguard/ Bluebird/ Voltas/ Servokon/ Logicstate
4	RO/water purifier	Kent/ IonExchange/ Aquaguard/ Venza
5	Drinking water cooler	Voltas/ Blue Star/ Usha
6	Refrigerant Copper Tube/pipes	Met-Tube/ Hindustan/ Rajco/ Totalline/ Mandav tubes /Jindal Refrigeration
7	UPVC Drain pipe	Polypack/ Supreme/ AKG/ BEC/ Ashirwad/ Astral/ Finolex
8	AHU (Dy. Coil Based)	Zeco / System Air/ Edgetech / Daikin/ Waves
	Insulation	
1	Nitrile Rubber	Armaflex/ Vidoflex/ Superflex/ K-flex/ ALP Aeroflex
2	Crossed linked polyethylene	Torcellene/ Thermo Break/ Armaflex / ALP Aeroflex
	Ducting & Grills	
1	Factory Fabricated Duct	Zeco/ Techno Fabri Duct/ Rolastar/ Ductofab/ ETA
2	G.I. Sheet Metal Duct	SAIL/ Tata/ Jindal
3	Grilles/Diffusers	Air Master/ Airflow/ Dynamic/ Ruskintitus/ Carryaire / Revistar
	Uninterrupted Power Supply (UPS)	
1	Online/Offline UPS	Numeric/ Eaton/ APC/ Vertiv/ Mitsubshi/ Toshiba/ Alliance Autometer/ Microtek/ Delta
	Audio Video System	
1	Projector	Panasonic / Christie / Barco / Sony/NEC /EPSON
2	LED Display	Panasonic / LG / Samsung / Sony
3	SITC of Floor Cart for one 55" Display	Custom Designed
4	Digital Podium	AHA/ILS/ TECOM /EAPL/ ELKO/ Liberty/ UNI

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

5	Motorised Projection Screen	Draper /Dalite/ Milan Lliberty/ Logic /Chief /Visico/ Teck/ Focus
6	Wall Plate	Atlona / Extron / Lightware/ Aurora/ Creston
7	Matrix Switcher	Atlona / Extron / Lightware / Aurora/ Creston
8	Matrix switcher with USB interface	Atlona / Extron / Lightware/ Aurora/ Creston
9	HD Base T receiver for HDMI with USB	Atlona / Extron / Lightware/ Aurora/ Creston
10	Transmitter and Receivers	Atlona / Extron / Lightware/ Aurora/ Creston
11	Wireless Presentation system	Atlona / Extron / Barco/ Creston/ Cramer/AMX
12	Goose neck microphone etc. complete as reqd. (on podium)	Audio Technica / Shure / Bayerdynamic /AKG/ Electrovoice /Senheiser/ JBL
13	wireless Lapel microphone etc. complete as reqd.	Audio Technica / Shure / Bayerdynamic /AKG/ Electrovoice /Senheiser/ JBL
14	Handheld wireless microphone with table stand etc. complete as reqd.	Audio Technica / Shure / Bayerdynamic /AKG /Electro voice / Senheiser/JBL
15	Antenna distribution system etc complete as per tender specification	Audio Technica / Shure / Bayerdynamic/ AKG/ Electro voice / Senheiser /JBL
16	Pair of UHF wide-band directional antennas etc complete as per tender specification	Audio Technica / Shure / Bayerdynamic/ AKG/ Electro voice /Senheiser /JBL
17	Speakers	L Acoustics / Community Audio/ Bose/ Martin Audio/ JBL/ Electrovoice/ Renkus Heinz / Sony /D&B Audiotechnik
18	Amplifier	Labgruppen / Powersoft / Martin Audio/Bose/ Lab Gruppen/ Ashly Audio /Bose/Sony/JBL
19	Digital Signal Processor	Klark Teknik / Biamp / Clearone/ Ashly Audio /Bose
20	Control System	Atlona / Extron / AMX/ Aurora/ Creston
21	Touch Control Panel	APPLE/ SAMSUNG/ AMX
22	Docking station for wireless touch panel	Launch Port / AMX / Vidda Box/ SAMSUNG
23	Wi fi access point	Linksys / Netgear / D-Link /CISCO/ Allied Tellies /HP / Aruba/ Juniper
24	POE Switch	Linksys / Netgear / D-Link /CISCO/ Allied Tellies/ HP/ Aruba/ Juniper
25	Cables	Sommer/ Gotham/ Belden/ Panduit/ Commscope /Simon /Atlona/ Sommer /Klotz/ Systimax/ Schneider/ Molex /Legrand/ Extreme/ Derwiser/ Systimax (Commscope) / Agilon
26	Connectors	Amphenol, Neutrik, Switchcraft
27	Rack	Valrack/MIDDLE ATLANTIC /WQ/ Netrack/ Panduit/ Rittal/ Emerson/ Schneider (APC)/ Derwiser
28	Multi Input Recorder	Lumens/ Mediapointe /Media site/ Vbrick
29	PTZ Camera	Honey Well/ Bosch/Sony/ Pelco/ Tyco/ Samsung
30	Camera Control Joystick	Lumens/ Sony/ Vaddio/ Honeywell
31	Document Camera	Lumens / Elmo / Wolf Vision
32	Video conference Codec	Panasonic /Cisco /Polycom
	SIGNAGE	
1	Signage	Autoglo / Prolite / Ceasefire
	HVAC System	
1	Chilled Water Machine (Screw/ centrifugal water cooled)	Johnson Control/ Daikin/ Carrier/ Bluestar/ Trane/ Voltas/ Dunhum- Bush 1
2	Brine Chilled Water Machine (Scroll water cooled)	Brine Chilled Water Machine (Scroll water cooled)
3	Pump	Grundfos / Kirloskar / Xylem / Armstrong/ Wilo

Addition.....Nil....,,.....
Deletion……...Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

4	Variable Frequency Drive (VFD)	Danfoss/ Siemens / ABB / Carrier
5	Cooling Tower	Bell / Paharpur / Mihir / Advance / Belden
6	Air Handling Unit (AHU)	Zeco Aircon/ System Air/ Edgetech /Bluestar / Voltas / Carrier / VTS/ Waves
7	Cooling Coil	Zeco Aircon/ System. Air/ Edgetech/ Bluestar/ Voltas/ Carrier/ Waves
8	Plug Fan	Kruger/ Nicotra / Greenheck/ Camtree
9	Centrifugal Fan	Kruger / System Air / Nicotra / Greenheck/ Camtree
10	Wet Scrubber	Zeco Aircon/ System Air / Edgetch/ Waves
11	Servo Voltage Stablizer	Servocon/ Servomax / Recons / NEEL / APLAB
12	Air Filter	Mechmaark / Pyramid / Thermodyne
13	Propeller fan	Marathon/ Sphere / Kruger
14	GSS Sheet	Sail/Tata/ Jindal / National
15	Factory Fabricated Duct(MS/GSS)	Dustech/ Ductofeb/ Zeco / Rolasta / Atco
16	EPS Thermal Insulation	Beardcell/ Styrene/SHI/ Lloyd/ Armaflex/ U.P. Twiga/ ALP Aeroflex
17	Fibre glass Wool	Owns Canning /Lloyd/ Armaflex/ U.P. Twiga /ALP Aeroflex
18	Flexible pipe connection	Resitoflex / Dunlop / Easyflex / Cori
19	Butterfly Valve	Advance / Audco / Honeywell / Belimo
20	Y-Strainer	Rapid cool/ Emerald / Honeywell / SM
21	POT Strainer	Rapid cool/ Emerald / Honeywell / SM
22	Non Return Valve	Audco / Advance / Honeywell
23	Balancing Valve	Audco / Advance / Honeywell
24	Two way Control Valve with Acturator, Motor and Thermostat	Honeywell / Siemens / Belimo / Danfoss
25	Ball Valve	Sant/ Rapid cool / Danfoss / Belimo
26	Auto Air / Purge Valve	Anergy/ Rapidcool / AIP / Flamco
27	Thermometer / Pressure Gauge	Fiebig/ H-Guru / Emerald / Libra
28	Water Flow Switch	Siemens/ Anergy / Omiron / Danfoss/ Honeywell
29	Temp & RH Sensor	Honeywell / Siemens/ Omiron / Schineider
30	Air Differential Pressure Switch	Honeywell / Siemens/ Omiron / Schineider
31	Air Differential Sensor	Honeywell / Siemens/ Omiron
32	Fire Damper with Actuator	Trox/ Greenheck / Conaire / Sgsjemair
33	Grilles & Dampers	Pineair/ Conaire/ Caryaire/ Greenair/ System Air/ Sevea/ Tristar
34	Under deck Insulation	Beardsell/ Styrene/ Lloyd/ Modifoam/ Armaflex/ ALP Aeroflex
35	Motor for Centrifugal Fan	Crompton Greaves / Siemens / L&T (LAURITZ KNUDSEN)
36	VFD Enclosure (Flameproof)	Siemens/ Schneider / L&T (LAURITZ KNUDSEN) / Crompton Greaves / Sudhir/ Balliga/ Flexpro/ FCGI
37	Single Phase Preventor	Minilec / L&T (LAURITZ KNUDSEN)/ Ellsco
38	Current Transformer (Cast Resin)	AE/ Kappa
39	Switch / Fuse Unit / HRC Fuse	L&T (LAURITZ KNUDSEN) / Siemens / ABB / C&S
40	Ammeter / Voltmeter (Digital Type)	AE /L&T (LAURITZ KNUDSEN) / Crompton Greaves / Siemens / Conserve
41	LED indicating Lamp / Push Button	Siemens/ GE Power / ABB / L&T (LAURITZ KNUDSEN)/ Schneider Electric
42	Selector Switch	AE/ L&T (LAURITZ KNUDSEN)/ Kaycee

Addition.....Nil....,,.....
Deletion……...Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

43	Relay Timer / Contactor / Starte/ Push Button	Siemens / L&T (LAURITZ KNUDSEN) / Schneider Electric / ABB / BIL
44	Paint	Nerolac / Asian / Berger
45	Power / Control Cable	Worldcab / Skytone / Polycab
46	Fire Survival Power / Control Cable	Belden / Fusion Polymers / Tyco / RR Kabel /Finolex/ Gloster/ Plaza/ Grandlay/ Rallison
47	Termination Kit	Raychem / Densons / Xicon / ABB
48	Perforated Cable Tray	B.E.C./Apex/ Aditya Steel
49	Fastener	Hilti / AFT / Wurth/ Fisher
50	ACB, Change Over Switch	L&T (LAURITZ KNUDSEN)/ Legrand / Schneider / Siemens
51	Copper Tube/pipes	Met-Tube/ Hindustan/ Rajco /Total line/ Mandav tubes/ Jindal Refrigeration
	CCTV System	
1	Bullet Camera	Honey Well/ Bosch/ Sony/ Pelco/ Tyco/ Samsung /PRAMA
2	Dome Camera	Honey Well/ Bosch /Sony/ Pelco/ Tyco/ Samsung /PRAMA
3	NETWORK SWITCH	Cisco/ Avaya/ Juniper/ Extreme/ Hp /PRAMA
4	WIRELESS CONTROLER	Cisco/ Avaya/ Juniper/ Extreme/ Hp /PRAMA
5	ACCESS POINT POE	Cisco/ Avaya/ Juniper/ Extreme/ Hp /PRAMA
6	NVR / KEYBOARD	Honey Well/ Bosch/ Sony/ Pelco/ Samsung /PRAMA
7	LED TV	Sony/ LG/ Panasonic/ Samsung /PRAMA
8	CAT 6A CABLE (23 AWG)	Panduit - Pannet/ Siemon/ Belden/ Systimax/ Kei /PRAMA
9	PATCH PANEL / PATCH CORD/RJ45 WITH FACE PLATE	Panduit Pannet/ Siemon/ Belden/ Systimax / PRAMA
10	Communication Cables/ Signal Cable/ Control/ Power Cable	Finolex, Havells, Polycab, Techno flex, Lapp Cable, Beldon, Legrand, Molex, Comm Scope, Schneider /PRAMA
11	Optic Fiber Cable	Systemax, Panduit, Siemon, Belkin, Beldon, Comm Scope, Legrand, Molex, Schneider /PRAMA/ Agilon
12	FACE PLATE / ADAPTOR PLATE	Panduit - Pannet/ Siemon/ Belden /PRAMA
13	WALL MOUNTING CABINETS / CABLE MANAGE	Emerson/ Panduit /Rittal /Valrack /PRAMA
14	SFP MODULE	Cisco/ Avaya/ Huawei/ Juniper/ Extreme/HP /PRAMA
15	IPPBX	Panasonic/ Cisco/ Mitel/ Alcatel/ Progility/ Avaya /NEC / Coral /PRAMA
16	CCTV STORAGE HDD	Samsung /WD / Seagate /PRAMA
17	TELEPHONE (ANALOG)	Panasonic/ Cisco/ Mitel/ Alcatel /Progility/ Avaya /NEC
18	TELEPHONE (DIGITAL)	Panasonic/ Cisco/ Mitel/ Alcatel /Progility/ Avaya /NEC
19	DIGITAL KEY TELEPHONE WITH LCD DISPLAY	Panasonic/ Cisco/ Mitel/ Alcatel /Progility/ Avaya /NEC
20	MDF	Panasonic/ Cisco /Mitel/ Alcatel/ Progility/ Avaya/ NEC / PRAMA
21	PVC Conduits	Recision/ BEC/ AKG Polycab/ Pressfit
22	Net work able LaserJet Color printer	Cannon/ Epson/ Hewlett Packard
23	DIGITAL WATER LEAK DETECTION SYSTEM	TTK/ Tyco (Tracetek)/ Elsa/ C- Systems
24	Digital Rodent Repellent System	Maser Electronics/ C-System/ RSCAT
	Boom Barriers	

Addition.....Nil....,,.....
Deletion…….....Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

1	Boom Barriers	Motwane, Godrej, Faac, Gunnebo
	LAN and Data Networking	
1	STP Cat6a Cable and Its Components Such as Patch Cords, Patch Panels, Face Plates and All Their Accessories	Comm Scope- SYSTIMAX/ Siemon/ Panduit-Pannet/ Belden/ Legrand/ Molex
2	Single Mode Fiber& Multi Mode Optic Cables of Various Core Capacities and Their Accessories — Wall Mounted or Rack Mounted Lius, Patch Cords and Pigtails and Other Accessories	COMMSCOPE- SYSTIMAX/ SIEMON/ PANDUIT-PANNET/ BELDEN/ MOLEX
3	NETWORKING ENCLOSURES, RACKS OF VARIOUS SIZES — 15U UP TO 42U	APW-VERO PRESIDENT/ RITTAL/ PANDUIT—PANNET/ VALRACK/ NETRECK
4	0.5 MM DIA FRLS PVC INSULATED ANNEALED Cable	Finolex/ RR Kable/ Havells/ Molex/ Bonton/ Delton/ Legrand/ Beldon/ Avaya/ Gloster/ Plaza/ AKG
5	COPPER CONDUCTOR CABLE — 4 PAIRS Cat-6 cable, fiber optic	Finolex/ RR Kable/ Havells/ Molex/ Bonton/ Delton/ Legrand/ Beldon/Avaya/ Gloster /Plaza/ AKG
6	Networking Switches — Access Switches, Distribution Switches, Core Switches, Server Farm Switches and their components such as 1Gbps SFP, 10Gbps SFP+, 40Gbps QSFP+ & 100Gbps QSFP28 transceivers and modules and other accessories such as power supplies, fans, stacking cables.	Cisco/ Extreme Networks/ HPE (Aruba)/ Juniper Networks/ Allied Telesis
7	Wireless Controllers, Wireless Access Points and their accessories	Cisco/ Extreme Networks/ HPE (Aruba)/ Juniper Networks/ Allied Telesis
8	Internet Router, Intranet Router and their accessories and Optic	Cisco/ Juniper Networks/ Extreme Networks/ HPE (Aruba)
9	Network Management System	Cisco/ Extreme Networks/ HPE (Aruba)/ Juniper Networks/ Allied Telesis
10	AAA Solution for Campus LAN	Cisco/ HPE (Aruba)/ Juniper/ Extreme Networks
11	Next Generation Firewall and its accessories	Check Point/ Cisco/ PaloAlto/ Annexegate/ Fortinet; F5/ HPE(Aruba)
12	IP based PBX Communication Solution, IP Phones, Soft phones, Voice Gateway, Communications Software and Mobility Client, Desktop Client Software	Avaya/ Cisco/ NEC/ Alcatel/ Matrix
13	Industry Standard Intel Platform Server Hardware	Dell/ HP/ Lenovo or as per IP-PBX communication system platform OEM
14	Chrone box	Topaz/ Coral /Crown
15	HARD DISK DRIVE	Seagate/ Hitachi/ WD
16	NETWORK RACK	Valrack/ Dynamic /Rittal/ Comrack /Netrack
17	Rack	Valrack/ Middle Atlantic /WQ/ Netrack/ Panduit/ Rittal/ Emerson/ Schneider (APC)/ Derwiser
	ACCESS CONTROL SYSTEM	
1	Access control system & allied accessories	HID/ Lenen/ Genetec /Idcube
	DG Set	
1	Diesel Operated Generating Engine	Cummins India/ Caterpillar / Ashok Leyland/ KOEL / Greaves / Perkins
2	Alternator	Stamford/ Lerroy Sommer / Kirloskar Electric / Caterpillar / Crompton Greaves / KOEL
3	DG Set Canopy / Enclosure	As Per OEM / OEA Of Respective DG Set Manufacturer.
4	MCB, MCBDB, RCBO'S/ RCCB'S	Schneider Electric /Hager/ L&T (LAURITZ KNUDSEN)/

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction...…Nil...,…….
Overwriting…..Nil.....

		Siemens/ ABB
5	MCCB 3 & 4 Pole	Schneider Electric/ Siemens/ Larsen & Toubro/ ABB
6	Ammeter/Voltmeter/ Selector Switch, Indicating Lamp/Relays	AE/IMP/ MECO/ L&T (LAURITZ KNUDSEN) (Only Digital Type To Be Used)
7	Contractors, Timer	L&T (LAURITZ KNUDSEN)/ Siemens/ Schneider Electric
8	HT Cable	KEI/ Havells /Polycab/ Gloster/ Nicco/ Grandlay/ Finolex /RR KABEL/ Rallison
9	LT Cable	Finolex/ RR Kabel/ KEI/ Havells/ Polycab/ Grandlay/ Plaza Cables/ Panasonic/ Anchor/ Bonton/ Paramount cables/ V-marc/ JMW Kable /AKG/ Gloster/ Rallison
10	Bus Trunking Make	GE/ C&S/ Schneider /L&T (LAURITZ KNUDSEN)/ ABB/ Legrand
11	HT Cable End Termination	M Seal/Denson/Raychem/Cab Seal
12	Battery	Panasonic/ Exide/ Amaron/ luminous/ SF
13	G.I. Pipe	Jindal (Hissar)/Tata. (ISI Marked)
14	ACB	L&T (LAURITZKNUDSEN) /ABB/ Siemens/ Schneider /Legrand
15	Vibration Isolators	Resistoflex/ Flenonics (USA)/ Gerv
16	Noise Control Silencer / Muffler	Intertec/ Sound Control India, As Per OEM
17	Fiberglass	UP Twiga, Kimmco/ Owing Corning
18	Alarm Annunciator	Advani Oralikon/ Larsen & Toubro Minilec
19	Motors	Kirloskar/ Bharat Bijlee/ Siemens
20	MS Pipes Upto 200 Mm Dia	Tata Steel/ Jindal (Hissar)
21	G.I. Pipe Fitting	Unik/ Zoloto M
22	Flexible Pipe Connections	Resisto flex/ Flexionics (USA)
23	Welding Rod	Advani/ ESAB
24	Indicating Lamps, Selector Switch	Siemens/ L&T (LAURITZ KNUDSEN)/ Kaycee/ BCH
25	AMF/Synchronized Panel(DG Set)	As Per OEM of DG Set
26	Cable Glands Double Compression With Earthing Links	Baliga Lighting / Comet / Cosmos / Dowell's
	Solar System Solar Power Generation System	
1	Solar Power Generation System	REIL/ BEL/ CEL/ REC/ SOLON/ TATA POWER /ADANI /INA/ WAAREE / VIKRAM/ ABB/ MOSER BEAR/ WIPRO
2	Junction Box	VNT/ SUN GARNER/ OEM of SPV Modules
3	SPV Inverter	Sungrow/ Delta/ SMA/ ABB
4	Module Mounting Structure	As per MNRE/ Manufacturer's standard
5	XLPE Alumunium / Copper cable	Finolex/ RR Kabel/ KEI/ Havells/ Polycab/ Paragon (Electron)/ Universal/Nicco/RPG Cables/ Grandlay/ Bonton/ Plaza cables/ Panasonic/ Anchor/ Paramount Cables/ V-marc/ JMW Kable /AKG/ Gloster/ Rallison
6	Solar cable XLPO Insulated (DC)	RR Kable / Polycab/ Havells/ Finolex/ Lapp/ Paragon (Electron)/ Bonton/ Svarn/ NEC/ KVVS/ HPL Finolex/ KEI/ Grandlay/ Plaza Cables/ Panasonic/ Anchor/ Paramount cables/ V-marc/ JMW Kable /AKG/ Gloster/ Rallison
	EARTHING	
1	Earthing	Avon Earthing, Ashlok Safe Earthing, VRH Lightning Protection

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction...…Nil...,…….
Overwriting…..Nil.....

	FACADE LIGHTING	
1	**Facade light**	Trilux, Philips, LT, Ligman, Griven, Traxon, Unilamp

	KITCHEN EQUIPMENTS	
1	BRATTPAN (GAS OPERTAED)	SAIMEX/FAGOR/MKN
2	BOILERPAN (GAS OPERTAED)	SAIMEX/FAGOR/MKN
3	STOCKPOT	SAIMEX/FAGOR/MKN
4	TWO BURNR INDIAN RANGE WITH SINGLE CHINESE BURNER RANGE	SAIMEX/FAGOR/MKN
5	COMBI OVEN STAND/ SPACE COMBI-6 TRAY	SAIMEX/FAGOR/MKN
6	WORKING TABLE WITH 2UNDER SHELF	SAIMEX/FAGOR/MKN
7	MASALA TROLLEY WITH GN PAN	SAIMEX/FAGOR/MKN
8	2/3 DOOR UNDER COUNTER FREEZER/ CHILLER	SAIMEX/FAGOR/MKN
9	SALAMANDER SALM 88	GMG/FAGOR/MKN
10	4 DOOR VERTICAL CHILLER	SAIMEX/FAGOR/MKN
11	SS BODY GAS TANDOOR	SAIMEX/FAGOR/MKN
12	HOT PLATE WITH DOUBLE PUFFER PLATE	SAIMEX/FAGOR/MKN
13	CHAPATI COLLECTION TROLLEY	SAIMEX/FAGOR/MKN
14	PICK-UP COUNTER WITH FOOD WARMER	SAIMEX/FAGOR/MKN
15	PLATE WARMER	SAIMEX/FAGOR/MKN
16	SS DRAIN TROUGH GRATING	SAIMEX/FAGOR/MKN
17	SS EXHAUST HOOD WITH FILTERS WITHOUT DUCTING FAN	SAIMEX/FAGOR/MKN
18	POTATO PEELER MACHINE	SAIMEX/FAGOR/MKN
19	GRAVY MACHINE	SAIMEX/FAGOR/MKN
20	TILTING TYPE MASALA GRINDER	SAIMEX/FAGOR/MKN
21	DOUGH MIXER	SAIMEX/FAGOR/MKN
22	DISH LANDING TABLE WITH 2 SINK UNIT	SAIMEX/FAGOR/MKN
23	GREASETRAP	SAIMEX/FAGOR/MKN
24	PRE- RINES EUNIT	SAIMEX/FAGOR/MKN
25	HOOD TYPE DISHWASHER	SILANOS/FAGOR/MKN
26	EXIT TABLE WITH 2UNDERSHELF	SAIMEX/FAGOR/MKN
27	CLEAN DISHRACK	SAIMEX/FAGOR/MKN
28	CLEAN DISHRACK	SAIMEX/FAGOR/MKN
29	POT WASH SINK	SAIMEX/FAGOR/MKN
30	POTRACK	SAIMEX/FAGOR/MKN
31	ONION POTATO BIN	SAIMEX/FAGOR/MKN
32	DUNNAGE RCAK	SAIMEX/FAGOR/MKN
33	SS STORAGE RCAK	SAIMEX/FAGOR/MKN
34	COFFEEMACHINE/ COFFEEGRINDER	ELEKTRA/FAGOR/MKN
35	BARISTA TOOL KIT	SAIMEX/FAGOR/MKN
36	BLENDER	JTC/FAGOR/MKN
37	WESTERN DISPLAY COUNTER	WESTERN/FAGOR/MKN
38	CONVEYOR BREAD TOASTER DT CLASSIC	GMG/FAGOR/MKN
39	HOT BAIN MARIE WITH GN PAN & PIPESHELF	SAIMEX/FAGOR/MKN
40	VERTICAL DISPLAY COOLER	WESTERN/FAGOR/MKN
41	3 DOOR UNDER COUNTER CHILLER	SAIMEX/FAGOR/MKN

Addition.....Nil....,,.....
Deletion……...Nil...…….
Correction...…Nil...,…….
Overwriting…..Nil.....

	I.E.I, MCBDB & MCB, Cables and Wires	
1	Modular switches, socket/ telephone socket/ cable TV socket/ data outlet socket/ fan regulator /GI boxes etc (Wiring accessories) /regulators etc.	Legrand (Arteor), Honeywell (Blenze pro), Wipro (Artisa Neo), Anchor by Panasonic (vision), Schneider Electric (Zencelo), Hager (Insysta), Havells (Murano), ABB (Zenit) or Equivalent in Indoasian but "The modular sheets must allow all switches, socket outlets, and fan regulators to be fixed onto metal strips that are securely screwed or welded to the box."

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

Schedule of Quantity					
Name of Work : Renovation of NBSC Hostel, Reception, VOF, Executive Suit, Dinning hall i/c Kitchen equipments and Type-V faculty flat including E&M at NBSC LDA Colony, Kanpur Road, Lucknow (UP).					
Sl. No.	**Description of Items**	**Qty**	**Rate**	**Unit**	**Amount**
	Sub Head : I (Internal Electrical Installation)				
1	Dismantling of existing fans, fittings, switchs & socket points, switch boards, light / fan / exfan / call bell points, circuit / submain wiring, LT panels, MCB DBs, ductable AC units & AC piping i/c disconnecting all electrical connections and stacking upto 50 mtr. etc. as reqd.	143.00	629.00	Job	89947.00
2	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface/ recessed steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required				
	(a) Group -A	1928.00	1440.00	Point	2776320.00
	(b) Group -B	1020.00	1684.00	Point	1717680.00
3	Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable in surface/ recessed steel conduit, and earthing the point with 1.5 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required.				
	(a) Group-A	600.00	914.00	Point	548400.00
4	Wiring for twin control light point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface / recessed steel conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS/HFFR PVC insulated copper conductor single core cable etc .as required.	24.00	2242.00	Point	53808.00
5	Supply and drawing of following sizes of Heavy duty Industrial Flexible cables, PVC				

Addition.....Nil....,,.....
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Overwriting…..Nil.....

	insulated, and FRLS round sheathed with multi core bright annealed bare copper conductor suitable for rated voltage of 1.1 KV grade, ISI marked conforming to IS:694:2010 with latest amendments in existing steel/PVC conduit/ trunking/pipe etc. as required.				
	(a) 3C x 1.5 sq. mm	1500.00	149.00	Mtr.	223500.00
6	Supplying and drawing following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.				
	(a) 3 x 1.5 sq. mm	500.00	104.00	Mtr.	52000.00
	(b) 3 x 4 sq. mm	1500.00	222.00	Mtr.	333000.00
	(c) 6 x 4 sq. mm	500.00	424.00	Mtr.	212000.00
	(d) 2 x 10 sq. Mm + 1 x 6 sq. Mm earth wire	1000.00	454.00	Mtr.	454000.00
	(e) 4 X 16 sq. mm + 2 X 6 sq. mm earth wire	1000.00	1198.00	Mtr.	1198000.00
	(f) 4 X 25 sq. mm + 2 X 6 sq. mm earth wire	1000.00	1732.00	Mtr.	1732000.00
7	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required.				
	(a) 2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	1500.00	370.00	Mtr.	555000.00
	(b) 4 x 1.5 sq mm + 2 x 1.5 sq mm earth wire	1000.00	474.00	Mtr.	474000.00
	(c) 2 X 4 sq. mm + 1 X 4 sq. mm earth wire	3500.00	476.00	Mtr.	1666000.00
	(c) 4 X 4 sq. mm + 2 X 4 sq. mm earth wire	1200.00	744.00	Mtr.	892800.00
8	Supplying and drawing following pair 0.5 mm dia FRLS/HFFR PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required				
	(a) 2 Pair	2500.00	39.00	Mtr.	97500.00
9	Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	395.00	402.00	Each	158790.00
10	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required	557.00	659.00	Each	367063.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

11	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 2 nos. 3 pin 5/6 A modular socket outlet and 2 nos. 5/6 A modular switch, connections etc. as required	611.00	757.00	Each	462527.00
12	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.	654.00	545.00	Each	356430.00
13	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	300.00	47.00	Each	14100.00
14	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
	(a) Telephone socket outlet (RJ 11)	212.00	168.00	Each	35616.00
	(b) TV antenna socket outlet	229.00	168.00	Each	38472.00
	(c) USB charger 1 Module	136.00	1614.00	Each	219504.00
15	Supplying and fixing of 25 A modular socket outlet and 25 A modular SP MCB, "C" curve along with 2 Nos. separate 2 module GI box with modular plate and cover in front on surface or in recess including connections, painting etc. as required. (For Gyeser Points)	395.00	1172.00	Each	462940.00
16	Supplying and fixing call bell/ buzzer suitable for single phase, 230 V, complete as required.	158.00	112.00	Each	17696.00
17	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required.				
	(a) 1 or 2 Module (75mmX75mm) (For Tele. & TV)	441.00	354.00	Each	156114.00
18	Supplying and fixing 2 module key card switch with key fob including 2 module GI box alongwith modular base & cover plate complete etc. as required.	119.00	2304.00	Each	274176.00
19	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed				

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	conduit as required.				
	(a) 25 mm	2000.00	289.00	Mtr.	578000.00
	(b) 32 mm	200.00	360.00	Mtr.	72000.00
	(c) 40 mm	300.00	515.00	Mtr.	154500.00
20	Supplying & fixing DLP U-PVC trunking of following size on the existing surface i/c flat covers and other accessories i.e Internal Corner, External Corner, end caps and divider etc complete as reqd.				
	(a) 100 mm x 50 mm /105 mm x 50 mm	1200.00	1504.00	Mtr.	1804800.00
	(b) 50 mm x 50 mm	500.00	1076.00	Mtr.	538000.00
	(Fans & Fittings)				
21	Supplying, installation, Testing & Commissioning of recessed Panel light 2x2 ft., having CRCA /Extruded Aluminium housing (Thickness > 1.20 mm) with specific architectural layout T rails using narrow recessed centre slots(min. size 9/16 inch (15mm) slot grid) structure to compress the glare down to UGR<16 with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range - 0 0C to 40 0C, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F.≥0.95, IP20, CRI >80,UGR (Unified Glare Rating) < 16, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 4000°K (As per ANSI Bin), SDCM (Standard Deviation Colour Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥130 lm/Watt output . LM79 & LM80 Test report with ULR code while submitting TDS and all testing required for LED fixtures as per BIS shall be submitted.				

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction...…Nil...,…….
Overwriting…..Nil.....

	(a) 32 watt	22.00	7381.00	Each	162382.00
22	Supplying, installation, Testing & Commissioning of recessed mounted Panel light 2x2 ft., of IP65 rating suitable for clean room application having body made of CRCA material with cover opal/PPMA completely fitted in SS frame for cleanroom application and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, System lumen efficacy >100 lm/Watt Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -5 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F.≥0.9, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5%), life time (LED, Driver& electrical circuitary), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 5700°K /6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than 40W Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in- Charge as per equirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).	15.00	7452.00	Each	111780.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

23	Supplying, installation, Testing & Commissioning of Tilt LED adjustable deep recess down lighter (Round), powder coated die cast aluminium/Extruded alluminium with built in driver, Operating voltage AC 240Volt, freq 50 hz, Operating temprange 0 deg to 35 deg centigrade, internal surge protection of 6 KVA with SP protection, beam angle 24 Deg (± 5%), THD<10%, P.F.≥0.95, IP20, CRI>80, UGR<16, life time of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends, CCT 4000°K, Maximum power consumption should not more than the specified rating and complete in all respect i/c connections with 1.5 sqmm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required", System lumen efficacy ≥85, maximum cutout diamension-85 mm. with Minimum 5 year OEM warranty LM79 & LM80 Test report with ULR code shall be submitted.				
	(a) 7 watt	1016.00	1268.00	Each	1288288.00
	(b) 10 watt	145.00	2194.00	Each	318130.00
24	Supplying, installation, Testing & Commissioning of LED surface Down lighter (Round/ square/ Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -5 degree C to 40 degree C centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10%, P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) <19, Flicker free (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen				

Addition.....Nil....,,.....
Deletion……...Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	printing on housing Complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted.. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast /Extruded aluminium Body including trim .				
	(a) 8 - 10 watt	190.00	624.00	Each	118560.00
25	Supplying, installation, testing and commissioning non DALI dimmable Suspended Down Truematrix 4ft long & 60-65mm wide linear standalone LED luminaire made of extruded aluminum, with special lens of dew drop facet design (housed in antiglare shield) & sunflower tessellation to have Delta wing distribution. The luminaire shall have system efficacy of ≥140lm/W with 2400Lm & beam angle of 65-70 degree & UGR <16. The LED shall be with CRI≥90 SDCM<3, CCT option of 4000K. Operating temperature of the luminaire shall be 0°C to +45°C and driver shall comply to the minimum electronic parameters of THD<10%, PF ≥0.95, & Internal surge protection of 3.5KV. The life shall be 50K Hrs. at L70B50 @ 45deg C, Operating voltage range of 140V - 270V having Class - I protection & serviceability of Class B. The luminaire shall be IP20 & IK02 compliance. The driver shall be of the same make as that of LED luminaire. Luminaire manufacturer must have IN-house NABL accredited lab to conduct LM79, Type test as per IS10322. The successful bidder must submit the NABL accreditation certificate for Luminaire manufacturer. The LED Luminaire & it's driver both should be BIS registered. The luminaire shall be supplied with adjustable suspension wires. The manufacturer shall submit the following reports before supply of material for	32.00	12682.00	Each	405824.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction...…Nil...,…….
Overwriting…..Nil.....

	approvals LM79 issued by NABL accredited lab, LM80 issued by LED manufacturer with ULR code while submitting TDS. Luminaire should be ROHS/ REACH/EPD /LEED & Well Compliant. with Minimum 5 year OEM warranty.				
26	Supplying, installation, Testing & Commissioning of step light with built in senser with a range of upto 3 mtr. & sensing angle of 110 degree (55 degree on each side) & with provision of getting off after 1 minut of inactivy made of aluminium having mininum dimensions of 85 x 85 mm complete in all respect i/c connections with 1.5 sqmm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required", maximum output 2 watt, System lumen efficacy ≥10 lumen per watt, CCT 3000 K, IP-20	123.00	1142.00	Each	140466.00
27	Supplying, installation, Testing & Commissioning of floor mounted floor lamp with 1 No. 7 watt E-27 LED lamp of minimum height 1500 mm and top diamention 380 mm with white round fabric with chrome finish made out of brash i/c connections with 1.5 Sqmm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required	123.00	11768.00	Each	1447464.00
28	Supplying, Installation, testing and commissioning of decorative wall bracket of height not more than 270 mm with chrome finish base made out of MS and opal glass suitable for 1 LED lamp and with 01 Nos. 9 watt E-14 LED lamp having lumen efficacy 100 LPW complete with all accessories including connections etc. as required.	526.00	3103.00	Each	1632178.00
29	Supplying, Installation, testing and commissioning of decorative Mirror light with Nickel finish base made out of MS and 02 Nos. opal glass suitable for 2 Nos. LED lamp and with 02 Nos. 5 watt G-9 LED lamp having lumen efficacy 100 LPW complete with all accessories including connections etc. as required.	85.00	4684.00	Each	398140.00
30	Supplying, installation, testing and commissioning of IP 20, 5 mtr. long LED strip with driver (30 watt input/ 25 watt output), self adhesive tape, base colour white	20.00	1114.00	Each	22280.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	having Min. 60 LEDs per meter to maintain uniform brightness with 600 lumens per meter, CCT 3000 K, CRI > 80, burning hours 20000, power factor > 0.8 i/c connection with 1.5 Sq. mm FRLS PVC insulated copper conductor single core cable, earthing i/c connection, interconnection etc. complete as reqd. with Minimum 5 year OEM warranty				
31	Supplying, installation, testing and commissioning of non dimmable pendant / recess type luminaire with HE-high efficiency LED of size min. 44mm height, 70 mm width &1000 mm lenght with flange suitable for circle formation having profile in aluminium, nano technology based powder-coated, opal diffuser for uniform illumination, electronic control gear & system power- 20w/mtr, CCT- 4000K, CRI > 80, white (PC), constant current driver, 70% of luminious flux after 50,000 operating hours, protection class I, IP 20 complete etc as reqd. with Minimum 5 year OEM warranty	20.00	22171.00	Mtr.	443420.00
32	Supplying, installation, Testing & Commissioning of circular architectural pendant luminaire of diameter 450 mm produced from round aluminium profile with superior white powder coating corrosion resistance using nano technology with suspension kit and all accessories directly on false ceiling including connection with 1.5 Sq. mm FRLS PVC insulated copper conductor single core cable and earthing etc. as reqd.with Minimum 5 year OEM warranty (i) Minimum lumen output 2600 lumen (ii) Luminaires lumen efficacy ≥ 110 Im/Watt (iii) CCT ≥ 4000, CRI > 80, PF ≥ 0.95, THD < 10% IP-20 (iv) L 70 rated life of 50 K hours (v) in built surge protection device of minimum 6 KV. (vi) oprating voltage range 140V-270 V	3.00	21783.00	Each	65349.00
33	Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver				

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	(Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -5 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast /Extruded aluminium Body (Thickness > 1.20 mm)				
	(a) 18- 22 watt	216.00	681.00	Each	147096.00
34	Supplying, installation, Testing & Commissioning of 750 lumen, LED bulk head, pressure die cast aluminium with built in driver, Operating voltage AC 140-270Volt, freq 50 hz, Operating temprange 0 deg to 45 deg centigrade, internal surge protection of 2.5KV with Short & Open circuit protection, THD<10%, P.F.≥0.95, IP65, IK-08, CRI>80, SDCM <5, life time of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends, CCT 5700°K/6500°K and complete in all respect i/c connections with 1.5 sqmm FRLS, PVC insulated copper conductor	119.00	738.00	Each	87822.00

Addition.....Nil....,,.....
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	single core cable and earthing etc. as required", System lumen efficacy ≥ 110 lm/W at out put with Minimum 5 year OEM warranty. LM79 & LM80 Test report with ULR code while submitting TDS and all testing required for LED fixtures as per BIS shall be submitted.				
35	Supplying, Installation, Testing & commissioning of single phase, 55 watt, min air delivery 1100 m3/Hr, 300 mm heavy duty exhaust fan i/c supplying and fixing of louvers/ shutters complete with frame, connection etc as reqd.	22.00	3662.00	Each	80564.00
36	Supplying, Installation, Testing & commissioning of single phase 45 watt with air delivery 810 m3/m, 250 mm plastic body fresh air fan with suitable shutter, louvre, clamps etc on existing opening i/c connection, testing & commissioning etc. as reqd.	68.00	2057.00	Each	139876.00
37	Supplying, Installation, Testing & commissioning of single phase 120 cm sweep having minimum 19 watt power input exhaust fan suitable for mounting on false ceiling with air delivery 100 m3/m, 1050 RPM, 100% copper motor for longer performance i/c suitable length flexible etc i/c connection, testing & commissioning etc. as reqd.	129.00	3539.00	Each	456531.00
38	Supplying, Installation, Testing & commissioning of Non recirculating centrifugal Air Curtains with following specifications:- Air Curtain (4 feet) with suitable double magnet limit switch mounting and base plate in MS powder coated and the front cover made in aluminium with plastic suction grills, with 21m/s air velocity, noise level 55db “A” scale, measured 10 feet from the unit, with (High / Low) velocity control, consisting of 2 motors and 4 blowers etc as reqd..	3.00	34316.00	Each	102948.00
39	Supplying, installation, Testing & Commissioning of LED fixture suitable for lowbay / midbay, pressure die cast aluminium/Extruded alluminium housing , cover with tempered glass of high transmittance, built in fixed driver, Operating voltage AC 140-240Volt, freq 50/60hz, Operating temprange (-) 05 deg to				

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	50 deg centigrade, internal surge protection of 4 KV with Short & Open circuit protection, THD<10%, P.F.≥0.95, IP66, IK-08, CRI>80, suitable for fixing on eyebolt, life time of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends, CCT 6500°K, Maximum power consumption should not more than the specified rating and complete in all respect i/c fixing on hook, connections with 1.5 sqmm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required , System lumen efficacy ≥130 lm/W at out put and beam angle min. 90 degree.				
	(a) 80 Watt	3.00	8257.00	Each	24771.00
40	Supplying, installation, Testing & Commissioning of recess mounted tiltable spotlight with adjustable focus having minimum wattage 10 watt, beam angle 36 Degree, 3000K, life 20000K Hours, voltage protection 160V-360V and surge protection up to 2.5 Kv etc. complete as required.				
	(a) 10 Watt	7.00	4796.00	Each	33572.00
41	Supplying, installation, Testing & Commissioning of Indoor alluminium finish 3 W Bed side wall light surface mounted with long arm gooseneck, warm white, including connection complete etc as required.	254.00	1355.00	Each	344170.00
	(MCB's & MCBDB's)				
42	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete w ith tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	(a) 12 way , Double door	158.00	2871.00	Each	453618.00
43	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of suitable capacity tinned copper bus bar, common neutral link, earth bar,din bar for mounting MCBs as outging & MCCB as incomer including 100 Amp 16				

	KA FP MCCB but without MCB's etc as reqd.				
	(a) 8 way Double door	10.00	17781.00	Each	177810.00
44	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 VTPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of suitable capacity tinned copper bus bar, common neutral link, earth bar,din bar for mounting MCBs as outging & MCCB as incomer including 250 Amp 16 KA FP MCCB but without MCB's etc as reqd.				
	(a) 8 way Double door	1.00	28379.00	Each	28379.00
45	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	(a) 4 way (4 + 12), Double door	34.00	4377.00	Each	148818.00
	(b) 12 way (4 + 36), Double door	4.00	8322.00	Each	33288.00
46	Supplying and fixing following rating pole, 415 V, 10 KA 'C' Curve miniature circuit breaker suitable for indicative load in the existing MCB DB complete with connections, testing and commissioning etc. as required				
	(a) 63 Amp TP MCB	84.00	1768.00	Each	148512.00
	(b) 63 Amp TPN MCB	38.00	2080.00	Each	79040.00
47	Supplying and fixing 5 A to 32 A rating, 240 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	(a) Single pole	2264.00	285.00	Each	645240.00
	(b) Single pole and neutral	158.00	643.00	Each	101594.00
48	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc.				

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	as required.				
	(a) 25 A	158.00	2141.00	Each	338278.00
49	Supply, Installation, testing and commissioning of IP-43, 8 way SMDB (Sub-Main distribution board/Load bank) made of sheet steel duly powder painted and having 250 Amp bus bar consisting of comer boxes at all corners, side cabling boxes at both sides of SMDB, mounting base, bottom cabling boxes and metering extension box at top of SMDB with 3 Nos. of 1 phase ameter (notless than 96mm*96mm) 1 no. of 1-phase voltmeter (not less than 96mm * 96mm) with selector switch and indicating lamps, compliance with latest standred-IEC 61439-2 i/c supply and fixing of following switch gear as reqd.				
(A)	**Incoming**				
	(a) 250Amp, TP, 25 KA thermal magnetic release type MCCB -1 No.				
	Outgoing				
	(a) 100Amp, TP, 25 KA thermal magnetic release type MCCB -8 Nos.	4.00	166361.00	Set	665444.00
50	Supplying , installation, testing & commissioning of floor mounted outdoor type (IP-54) 19 compartment metering panel made out of 2 mm thick CRCA sheet of suitable size with 300 mm deep with 4 strip Al. Bus bar of 400 Amp capacity high conductivity duly insulated having locking arrangement, removable gland plates of 3mm thick for incoming / outgoing cables, neutral link,earthing stud, powder coated with seven tank process , having 19 Nos. front openable compartmemtalised metering cubicles of mini. size 500 mm x 500 mm and 3 mm thick bakelite sheet for meter mounting and din channel for MCB mounting , see through glass with suitable size hole & supplying & fixing following switch gears with suitable terminal spreaders there in i/c flexible copper connections from bus bars upto to metering compartment, connections, inter connection, earthing etc as reqd at site.(a) 250 Amp, 25 kA 4 pole MCCB with spreader terminals & extended rotary handle (Ics=100% Icu)- 1 No. (b) 63 Amps TP MCB 10 kA C Curve - 19 Nos.(c) Indication lights (RYB) 230 V	1.00	210548.00	Set.	210548.00

Addition.....Nil....,,.....
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	AC -03 Nos.(d) VAF+PF Multi function meter having Class 1.0 - 01 No.				
51	Supply of following sizes aluminium LT Cables, XLPE Insulated, Cores laid up, PVC outer seathed, armoured with galvanized round steel wire or steel strip cables with standard aluminium conductor suitable for rated voltage of 1.1 KV grade, ISI marked conforming to IS:7088(Part-1)/1988 with latest amedments etc as reqd.				
	(a) 3.5 X 35 sq. mm	3500.00	600.00	Mtr.	2100000.00
52	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
	(a) Up to 35 sq. mm	2000.00	47.00	Mtr.	94000.00
53	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required.				
	(a) Up to 35 sq. mm	100.00	36.00	Mtr.	3600.00
54	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
	(a) Upto 35 sq. mm (clamped with 1mm thick saddle)	800.00	64.00	Mtr.	51200.00
55	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.. direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
	(a) 63 mm dia (OD-63 mm & ID-51 mm nominal)	2000.00	289.00	Mtr.	578000.00
56	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required				
	(a) 3½ X 35 sq. mm (32mm)	17.00	437.00	Each	7429.00

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57	SITC of Analog Phone, DTMF/FSK CLI Compatible having 16-digit LCD display with Blue backlight display for easier viewing in all lighting and adjustable 2 way speaker functioning feature , message waiting indicator, Headest ,interface, Should have features buttons: Headest , Phone , Call log, Contacts, Voicemail Message, complete as per Technical Specifications etc. complete as reqd	23.00	1649.00	Each	37927.00
	(Earthing)				
58	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	44.00	7658.00	Set	336952.00
59	Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.	120.00	313.00	Mtr.	37560.00
60	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	800.00	84.00	Mtr.	67200.00
	Sub Head -II (LAN System)				
61	Supplying, drawing, Testing and commissioning of Cat6A UTP 4 pair, 23 AWG solid copper cable in existing conduit/ on surface, U/FTP, LSZH, Non- Plenum, Horizontal (solid) Cable suitable for high speed data networking application supporting upto 10Gbps over a 100 meter channel. The 4 Unshielded Twisted Pairs (UTP) cable with color coded insulation for easy indentification should have FLAME PROPERTIES i.e. Flammability Test - IEC 60332-1, Smoke Density - IEC 61034, LSZH standards compliance: ANSI/TIA-568 C.2, ISO/IEC 11801, IEEE 802.3an, RoHS. Delay Skew should be < 45NS. The outer Cable Diameter should be 7.5 + 2 mm. Cable should have been tested and verified by UL/ ETL etc. complete as required.				
	(a) 1 run of cable	2000.00	62.00	Mtr.	124000.00
	(b) 2 run of cable	500.00	99.00	Mtr.	49500.00
	(c) 3 run of cable	500.00	137.00	Mtr.	68500.00

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	(d) 4 run of cable	200.00	174.00	Mtr.	34800.00
62	Supplying, Installation, Testing and commissioning of following CAT6A Patch Cord should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required				
	(a) Copper Patch Cords of length 1m (3ft)	10.00	173.00	Each	1730.00
63	Supplying, Installation, Testing and commissioning of RJ45 Connector for CAT 6/6A Cables. RJ45 modular plug supports 4 twisted pairs, 8 positions, 8 connectors. Housing: PC, UL94V-2, transparent color, Use for 24- 26 AWG stranded wires etc. complete as required.	100.00	9.00	Each	900.00
64	Supplying and drawing following core Fiber Optic Cable having corrugated steel armoring. The Fiber should be SM Fiber Central -loose tube filled with Thixotropic jelly, duly following Standards: ISO 11801, IEC 60793-1/60794-1-2, ITU-T-REC G.652D and Telecordia GR-20-core, High quality Electro Chromium Coated Corrugated Steel tape (ECCS) and HDPE-Sheath, Operating ambient Temperature should be – 5 0C to +50 0C and Storage Temperature shall be – 5 0C to +50 0C, Max Attenuation ± 0.36 (db / km) at Operational Wavelength 1310 nm and ± 0.22 db / km at Operational Wavelength 1550 nm. type of fiber should be 9/125 / G.652D & Refractive Index should be 1.4670/1.4675. The value for Mode-filed, Cladding Diameter 9.2 ± 0.4 µm and 125 ± 0.7 µm correspondingly. The Dispersion value < 3.5 < 18 ps/nm-km and PMD value < 0.2 ps/km and Cable Cutoff wavelength < 1260 nm i/c splicing & marking etc complete as required.				
	(a) Single Mode 12 Core Optical fiber cable	1000.00	89.00	Mtr.	89000.00
65	Supply and fixing following port Rack Mount loaded LIU with pigtail, Front-mounted cable saddles for jumper management, suitable to manage both splices and terminations, Pre-assembled shelves in multiple configurations, Rubber fiber slotted bracket built-in, metal splice shelf to protect the fibers, 2 fiber spools built-in for 900µm tight buffered fiber storing, Capable of storing up to 3 meters of 900µm tight	-	-	-	

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	buffered fiber per adapter, Removable front and rear covers for better access to interior of LIU, Should be Single / Multi mode LC Type fully loaded. Accessory kit consists of cable ties, mounting ear screws, and spiral wrap tube etc complete as required.				
	(a) 12Port LIU	3.00	7040.00	Each	21120.00
	(b) 24 Port LIU	3.00	10049.00	Each	30147.00
66	Supplying and fixing Patch Cord of Optical Fiber Multi Mode or Single Mode LC to LC Fiber Duplex having high precision ceramic ferrule with good concentricity, Fiber corning single mode G652D, Cable Type 2mm with Mechanical specification Apex Offset < 50 µm, Fiber Height + 100 nm, End-face radius of Curvature 7mm < R <25mm, Repeatability < 0.2 db, Working ambient Temperature – 5 0C to +50 0C, Storage Temperature – 10 0C to +50 0C, Length -- 2meter, Type -- LC-LC Duplex etc complete as required	20.00	705.00	Each	14100.00
67	Supplying, Installation, Testing and commissioning of CAT6A Copper Information Outlet (IO) with face plate of color as per site requirement, should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D. All copper Cable and Components should be from same OEM to maintain compatibility and interoperability etc. complete as required	34.00	302.00	Each	10268.00
68	Supplying and fixing 24U Rack with 4 inch Castor wheels and front brake Floor Standing Rack with Main Frame Pillar of 1.25mm Powder Coated CRCA Sheet with removable side panels, L- Shape adjustable Vertical Mounting Rail of 2mm with 'U' Marking completely knocked-down condition (CKD) Shape, fitted with 4 number cooling fans, minimum 5nos two line cable entry/exit provision at top and bottom with rubber protection, Front door 5mm Toughened Glass with MS frame or MS perforated with lock, Rear MS vented or perforated door, Powder coated Color- RAL-7035 or black, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware	1.00	21201.00	Each	21201.00

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	mounting screws packet of 20 x 1 number, etc. complete as required.				
69	Supplying and fixing of following size Wall Mount Rack having Fixed Structure with 0.8mm CRCA Sheet, completely knocked-down condition (CKD) Shape, Vertical Mounting Rail 1.6 mm with 'U' Marking, Minimum 2 cable entry/exit provision at Top and bottom with rubber protection, Front 5mm Toughened Glass with lock, wall mounting kit, Powder coated Color- RAL-7035, complied with UL & RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required				
	(a) 6U Rack	5.00	6939.00	Each	34695.00
70	Supplying, Installation, Testing and commissioning of indoor Wireless Access Point for High density use having features and specifications etc. as mentioned here under- WiFi6 802.11ax 574Mbps (2.4GHz) + 2402Mbps (5GHz), WIFI 6 Certified / Wi-Fi Alliance, MG 2.5G LAN POE Port, having console management function, factory reset, WPA/WPA2/WPA3™ Personal/Enterprise, WEP 64/128-bit, SSID broadcast disable, MAC address access control, Internal RADIUS server, SNMP, Customizable Captive Portal, Auto Channel, Works as Access Point, WDS, WDS with AP/ Wireless Client/MESH., Web (HTTP), Secure Socket Layer (SSL), Traffic control, Support ATF/Fast Roaming/Band Steering, Supports enhanced security – WPA-PSK/WPA2- PSK/WPA3-PSK and RADIUS client, and Cipher negotiation, and MAC/ IP ACL for networks, Certifications: FCC, CE marked, UL/EN, RohS and relevant MTCTE(TEC)/BIS compliance/certification as applicable. Works as Standalone, Compatible with S/W & H/W Controller with additional features like - Real-Time Monitoring and Alerts, Rich Advanced Features, Centralized Device Management, Role-Based dministration, Real-Time Monitoring, VLAN and Access Control, Auto RF Management and Bandwidth Optimization, Multi-SSID and Captive	4.00	35559.00	Each	142236.00

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	Portal Authentication. etc. complete as required				
71	Supplying, Installation, Testing and commissioning of Outdoor Wireless Access Point having features and specifications etc. as mentioned here under - WIFI 6 Certified/Wi-Fi alliance, MG 1G LAN POE Port, having console management function, factory reset, 4 x internal antennas, the transmission coverage of shall be minimum 80 meters in radius, AP should have transmission power minimum of 22 dBm, The AP shall provide a minimum of 29 dBm EIRP for both 2.4 GHz and 5 GHz frequencies. Feild deployment shall be with EIRP as per regulatory guidelines, AP shall have dual-band Omni-directional Antenna, either internal or external. Feild deployment shall be with EIRP as per the WPC guideline, WPA/WPA2/WPA3™ Personal/Enterprise, WEP 64/128-bit, SSID broadcast disable, MAC address access control, Internal RADIUS server, SNMP, Customizable Captive Portal, Auto Channel, Works as Access Point, WDS, WDS with AP, Wireless Client/MESH/ Web (HTTP), Secure Socket Layer (SSL), Traffic control, Support ATF/Fast Roaming/Band Steering, Supports enhanced security – WPAPSK/ WPA2-PSK/WPA3-PSK and RADIUS client, and Cipher negotiation, and MAC/ IP ACL for networks, IP67 water/dustproof standard, 6KV Surge Protection; 4KV ESD Protection (contact), 6KV (air), Operating ambient temperature (-5~50 °C), Grounding point support, IEC 60601-1-2 EMC Medical Electrical Equipment Testing and Certification, EN50121-1 & EN50121-4 for Wireless Application. Certifications: FCC, CE marked, UL/EN, RohS and relevant MTCTE(TEC)/BIS compliance/certification as applicable. Works as Standalone, Compatible with S/W & H/W Controller with additional features like - Real-Time Monitoring and Alerts, Rich Advanced Features, Centralized Device Management, Role- Based Administration, Real-Time Monitoring, VLAN and Access Control, Auto RF Management and Bandwidth Optimization, Multi-SSID and Captive	21.00	46171.00	Each	969591.00

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	Portal Authentication, etc. complete with require hardware/software controller etc. to make AP functional as required.				
72	Applying, installation, Testing and commissioning of following capacity 24 port Layer 3 Network Switch having features and specifications etc. as mentioned here under: At least 20 X RJ-45 Gigabit Ethernet Ports and additional 4 combo 10/100/1000 base-t/SFP Ports with additional 4 SFP+ ports non-blocking architecture by having Switching capacity of min. 128Gbps and packet forwarding rate of 95Mpps or higher, 16K MAC table. Console Port, USB port, Dual AC Power supply with operating temperature of 0 to +50 0C. Stacking port with stacking support of minimum 8 units per stack. 32K Mac address, 9K or more Jumbo frame, ERPS with enabling ring to converge in less than 50 ms from node or link failure, Static routing, Static, 6to4, ISATAP and GRE, IPv6 Neighbor Discovery (ND), BGP/ISIS/MPLS/ VRRP v2/OSPFv2/v3, PBR, Route Redistribution, RIPv1/v2/ng, IP Helper all L3 Protocols should support from day 1 for both IPv6 and IPv4, 802.1x, Port security , Radius C TACACS+ authentication C accounting, DAD, DAI, DoS attack prevention, SSH, Guest VLAN, IP Access List, MAC Access List. Multicast: VLAN, PIM-SM, PIMDM,PIM- SDM, PIM-SMv6, DVMRP v3 and MSDP, IGMP C MLD Snooping, Flow mirroring, IGMP C MLD Snooping Querier, Per-SVLAN IGMP C MLD Snooping. SNMP, Dual configurations, Multiple images, RMON, LLDP/LLDP-MED, sFlow, DHCP/BOOTP Client, IPv4/IPv6, Syslog server, Debug command, 802.3ah Ethernet Link OAM, 802.1ag Connectivity Fault, Y.1731 OAM, 802.1Qbb Priority- based Flow Control (PFC), Dying Gasp, Cable Diagnostics , 6 kV surge protection on all Gigabit Ethernet ports and on all GE RJ-45 access ports. Certifications: FCC, CE marked, UL/EN, RohS and relevant MTCTE(TEC)/BIS compliance/certification as applicable etc. complete as required.	1.00	193791.00	Each	193791.00

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73	Supplying, installation, Testing and commissioning of following capacity 24 port Layer 2 indoor Network Switch having features and specifications etc. as mentioned here under: At least 24 X RJ-45 Gigabit Ethernet Ports and additional 2 X 10G Base - T with 4 X SFP Ports with non-blocking architecture by having Switching capacity of min. 128Gbps and packet forwarding rate of 95Mpps or higher, 16K MAC table. Console Port, USB port, Stacking support of min. 4 units per stack. Internal dual AC Power supply, STP, RSTP, MSTP, BPDU Filter, BPDU Restriction, Min. 9K Jumbo Frame, LBD, IGMP Snooping V1/V2/V3, MLD Snopping V1/V2. IGMP /MLD Groups 1K or more, IPv4/IPv6 Loopback Interface, 16 L3 IP Interface, Ipv6 ND, VRRPv3, UDP Helper, ECMP. VLAN: 802.1Q, Port based, Q-in-Q, Multicast VLAN, Protocol VLAN, VLAN Trunking, DHCP Snopping, Server, server Screening. RADIUS , TACACS+ Authentication, QoS: 802.1P, 8 queues per port, QoS : WRR, Strict +WRR, WRED, 802.1p. ACL: MAC based, IPv4C IPv6, TCP/UDP Port number, time based ACL, TFTP Client, SNMP V1, v2c, v3, SNMP traps, RMON, DHCP server, relay, client, LLDP, LLDP-MED, OAM, Dying Gasp, 802.3ah, sflow, RIP, OSPF v2/v3, policy based route, SSL, SSH. 6 kV surge protection on all Gigabit Ethernet ports and on all GE RJ-45 access ports. Certifications: FCC, CE marked, UL/EN, RohS and relevant MTCTE(TEC)/BIS compliance /certification as applicable etc. complete as required.				
	(a) 24 port PoE Layer 2 Network Switch with PoE Support of 370W or higher with each copper port supporting 802.3at PoE+ min.	2.00	125393.00	Each	250786.00
74	Supplying, installation, Testing and commissioning of following capacity 8 port Layer 2 indoor Network Switch having features and specifications etc. as mentioned here under: Minimum 8 X RJ-45 Gigabit Ethernet Ports and additional 2 X 1G SFP Ports with non-blocking architecture by having Switching capacity of minimum 20Gbps and packet forwarding rate of				

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	14Mpps or higher, 8K MAC table. Internal dual AC Power supply with operating temperature of -5 0C to +50 0C. Jumbo frame: 9KB or higher, IGMP Snooping, IGMP snooping querier and support for IGMP Snooping Fast Leave, Should create 250 or more MLD groups, MLD Snooping, Per VLAN MLD Snooping C MLD Snooping Fast Leave, STP, RSTP, MSTP, Loopback detection, Multicast filtering, VLAN Tagging, QOS: 8 Que per port, WRR, IPv4/IPv6 Interface : minimum 100 IPv4 static route entries and minimum 50 IPv6 static route entries, 700 Acess Control entries, SSH CSSL for IPv4 and IPv6, 802.1x, ARP Spoofing, DHCP Snooping and server screening, IP+MAC+Port Binding, Per Port Bandwidth Control, 802.1X Authentication (Supports local/RADIUS database, Port-based Access Control and EAP, OTP, TLS, TTLS, PEAP Support) Cable Diagnostic feature, LLDP, LLDP-MED, SNTP/NTP, RMON, SNMP v1,v2c, v3 and SNMP Traps. Certifications: :FCC, CE marked, UL/EN, RohS and relevant MTCTE(TEC)/BIS compliance/certification as applicable etc. complete as required.				
	(a) 8 port PoE Layer 2 Network Switch with PoE Support of 130W or higher with each copper port supporting 802.3at PoE+.	3.00	35091.00	Each	105273.00
75	Supplying, Installation, Testing and commissioning of small form-Pluggable (SFP) for Network Switches. Must be hot Pluggable, RoHS Complaint, etc. complete as required				
	(a) 1G SFP Single Mode/Multi Mode	6.00	4211.00	Each	25266.00
	Sub Head -III (VRV / VRF System)				
76	Supplying, Installation, Testing & Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling/heating having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s),minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable				

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	foundation etc. complete as required. To have better efficiency condensor fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 °C. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity <40 kWr ISEER 6.4, Capacity > 40 and <70 ISEER 6.5, Capacity > 70 ISEER 6.6 for ECSBC+ Building)				
	For Cooling or Heating or Both				
	(a) 10 HP to 12 HP	30.00	21422.00	per HP	642660.00
	(b) 14 HP to 22 HP	40.00	20385.00	per HP	815400.00
77	Supplying, Installation, Testing and Commissioning of following minimum capacity 4 way Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a singal from the BMS System/Fire Singnals. The system shall be capable to adjust air flow as per room requirement in auto mode. The cooling				

Addition.....Nil....,,.....
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	capacity of indoor unit will be at air inlet conditions of 27 0C DB and 19 0C WB temperature. (Make will be same as of Outdoor)				
	(a) 1.6 TR	9.00	39464.00	Each	355176.00
	(b) 2.0 TR	5.00	39734.00	Each	198670.00
	(c) 3.6 TR	6.00	44269.00	Each	265614.00
78	Supplying, Installation, Testing and Commissioning of following minimum capacity Single way wall/corner VRV/VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a singal from the BMS System/Fire Singnals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 0C DB and 19 0C WB temperature. (Make will be same as of Outdoor) (For VIP Suits)				
	(a) 1.2 TR	8.00	42326.00	Each	338608.00
79	Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of 19 mm thick insulation as given below for Suction and Liquid lines, all accessories as per specifications etc. as required				
	(a) 6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with tube thickness 1.2 mm	200.00	256.00	Mtr.	51200.00

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	(b) 9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with tube thickness 1.2 mm	200.00	346.00	Mtr.	69200.00
	(c) 12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with tube thickness 1.2 mm	250.00	487.00	Mtr.	121750.00
	(d) 15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with tube thickness 1.2 mm	250.00	615.00	Mtr.	153750.00
	(e) 19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with tube thickness 1.2 mm	100.00	739.00	Mtr.	73900.00
	(f) 22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with tube thickness 1.2 mm	50.00	904.00	Mtr.	45200.00
	(g) 28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mmwith tube thickness 1.2 mm	300.00	1157.00	Mtr.	347100.00
	(h) 34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with tube thickness 1.62 mm	100.00	1286.00	Mtr.	128600.00
	(i) 41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with tube thickness 1.62 mm	100.00	1368.00	Mtr.	136800.00
80	Supply, Installation, Testing and commissioning of PVC (minimum 15kg/sq cm pressure rated) drain water piping complete with fittings (elbows, tees, reducers, sockets, u trap etc.) supports, jointing duct insulated with XLPE class O tubular insulation and any other item required to make the system complete. Nominal diameters of pipe in mm as indicated below complete etc as reqd.				
	(a) 32 mm dia drain pipe	15.00	360.00	Mtr.	5400.00
	(b) 25 mm dia drain pipe	20.00	291.00	Mtr.	5820.00
81	Supply and drawing of following sizes of Heavy duty Industrial Flexible cables, PVC insulated, and FRLS round sheathed with multi core bright annealed bare copper conductor suitable for rated voltage of 1.1 KV grade, ISI marked conforming to IS:694:2010 with latest amendments in existing steel/PVC conduit/ trunking/ pipe etc. as required				
	(a) 3C x 4 sq. mm	2000.00	376.00	Mtr.	752000.00

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82	Supplying and installation following size of perforated painted with powder coating M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers MS/GI Suspenders i/c base of suitable size MS/GI angle, bolts & nuts, painting suspenders, fastener etc as required.				
	(a) 150 mm width X 50 mm depth X 1.6 mm thickness	120.00	686.00	Mtr.	82320.00
	(b) 300 mm width X 50 mm depth X 1.6 mm thickness	50.00	866.00	Mtr.	43300.00
83	Supply & drawing of 2C x 1.5 Sq. mm copper conductor control & transmission cable as communication cable in PVC conduit complete etc as reqd.	2000.00	267.00	Mtr.	534000.00
84	Supplying, Installation, Testing and Commissioning of Y/T/Multi Joints. Joints shall be of same Original Equipment Manufacturer (OEM) make as of ODUs and IDUs				
	(a) Indoor Units	19.00	4535.00	Each	86165.00
	(b) Outdoor Multi Joints	4.00	8098.00	Each	32392.00
85	Supplying, Installation, Testing and Commissioning of floor mounted double door with locking arrangement, front and rear openable, totally enclosed, compartmentalized, dust, vermin proof and outdoor type Feeder Pillar (IP54) fabricated out of 2mm thick cold rolled carbon annealed, sheet steel removable gland plate of 3mm thick, with suitable capacity insulated bus bar, Bus Bar supports, Interconnections, cable alley, powder coated paint with seimens grey paint after 7 tank cleaning process, two earth studs complete following incoming and outgoing switchgears including making provisions for termination of incoming/ outgoing cables, inter connections with lugs/ thimble for switch gears including providing 40mm X 40mm X 6 mm thick Angle with four legs to keep the Feeder Pillar upto 450 mm above ground level and 150mm grouted in cement concrete 1:3:6 Min. Depth shall be not less than 400 mm. (For VRV- ODU)				
	Incomer:				

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	(a) 125 Amps. 25 KA 4 pole Thermal Magnetic release MCCB with spreader link on both side (Ics=100% Icu) - 1 No				
	Busbar:-				
	4 strip Alluminium bus bars of min. 200 Amps capacity with heat shrinkable coloured sleeves and including DMC/SMC bars supports at required intervals-1 set.				
	Outgoing :				
	(a) 63 Amps. 10 KA TP MCB 'C' Curve- 4 Nos.	1.00	73327.00	Job	73327.00
86	Supply of following sizes of Aluminiumn LT cables, XLPE insulated, cores laid up, PVC outer sheathed, armoured with galvanized round steel wire or steel strip cables with stranded Aluminium conductor suitable for rated voltage of 1.1 KV grade, isl marked conforming to IS:7098(Part-1)/1988 with latest amendements etc. as required.				
	(A) 3.50 x 120 Sq. mm	800.00	1732.00	Mtr.	1385600.00
	(b) 4 x 25 Sq. mm	800.00	465.00	Mtr.	372000.00
87	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation and refilling the trench etc as required, but excluding sand cushioning and protective covering.				
	(a) Upto 35 sq. mm	230.00	253.00	Mtr.	58190.00
	(b) Above 95 sq. mm and upto 185 sq. mm	630.00	298.00	Mtr.	187740.00
88	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
	(a) Upto 35 sq. mm (clamped with 1mm thick saddle)	170.00	64.00	Mtr.	10880.00
	(b) Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	170.00	180.00	Mtr.	30600.00
89	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required				
	(a) 3½ X 120 sq. mm (45mm)	2.00	710.00	Each	1420.00

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	(b) 4 X 25 sq. mm (28mm)	2.00	373.00	Each	746.00
	Sub Head : IV (Kitchen Equipments)				
90	Fabricating, Supplying and proper positioning of following items at site as per drawing (Approved make for customized fabricated kitchen equipments make - SAIMEX, FAGROR, MKN, Zeneth Kitchen Equipment Pvt Ltd, Apollo Kitchen Equipments & Services Pvt. Ltd. VSG Equipment, Bhagwati Udyog) and as per direction & upto the satisfaction of Engineer-in-charge.				
	MAIN KITCHEN				
(a)	GAS OPERATED TILTING BRATT PAN Capacity 200 LTR - Supplying, fixing, testing & commissioning of Bratt Pan as per given make and model make -The unit Pan will be constructed from 3mm AISI 304 grade stainless steel, Pan Should be off rounded corner and no edges, and with a wide opening for unloading, making all cooking and cleaning operations easier, unit with manual tilting mechanism to facilitate pan emptying Smooth large surfaces, a easy access for cleaning, Unit to have stainless steel feet with height adjustment up to 50 mm, unit shall be with cooking temperature setting through adjustable thermostat from 100ºC to 290ºC ,unit cooking surface should be Duo mat bottom not less than 10 mm Double skin lid for better insulation of the bratt pan etc as required.	1.00	252821.00	Each	252821.00
(b)	Manual Tilting Boiling pans of Capacity - 200 Ltr - Supplying, testing, installation & commissioning of The unit with indirect gas heating, Heating system that uses integrally generated saturated steam at a temperature of 110° C in the jacket, Jacket pressure control by means of safety relief valve calibrated at 0.5 bar, vacuum, valve and pressure gauge, Jacket pressure control by means of safety relief valve calibrated at 0.5 bar, vacuum, valve and pressure gauge, External valve allows to manually evacuate excess air accumulated in the jacket during heating phase, Safety valve avoids overpressure of the steam in the jacket. Gas safety valve with auto ignition, Double skin lid which increase isolation of the cooking vessel firmly fitted	1.00	263814.00	Each	263814.00

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	lid & Large capacity drain tap enables easy discharging of food Safety thermostat protects against low water level Should be Supplied with AISI 304 perforated sheet round basket with handle etc as required.				
(c)	STOCK POT RANGE WITH CAST IRON GRATE DIMENSION (mm) 750 X 750 X 600 Stock Pot Range fitted with 90,000 BTUs/Hr two piece ring-type cast iron brass burners with pilot lamp provides maximum cooking performance. The frame of stock pot range shall be constructed with stainless steel 4 mm of 40x40 mm angle. The top of Stock pot range without back splash shall be constructed with AISI 304 stainless steel of 16SWG. Top fitted on the Stainless less angle frame. Exterior frame cladding of Rear & both sides shall be of 18 SWG AISI 304 Stainless steel, the front and control panel and Slide-out drip tray/pan shall also be of 18SWG. The range shall be provided with Heavy-duty 50 x50 mm square pipe of 16SWG AISI 304 stainless steel legs and Cross Bracing support from all side, legs shall be fitted with the adjustable SS bullet feet. The stock pot provided /fitted with manual heavy-duty on/off control value for Burner and pilot lamp and heavy –duty large one-piece cast Iron 450mmX450mm grate and pressure control regulator. The Brass Burner, pilot lamp, on/off value and pressure control regulator shall be of United /HP make etc. as reqd	1.00	23084.00	Each	23084.00
(d)	Supply, fabrication, installation and testing of a commercial-grade, combination gas cooking range constructed entirely from food-grade SS304 stainless steel, Overall Dimensions: Minimum 1800 mm (W) x 750 mm (D) x 850 mm (H) working height, with an additional +100 mm integrated splashback / rear up-turn, Top Plate Sheet: Fabricated from heavy-duty, 1.5 mm thick (16 Gauge) AISI 304 Stainless Steel reinforced with a robust internal structural framework constructed from SS heavy angles, Body Panels & Under shelf: Side panels, front fascia, and one full-length bottom tier storage shelf fabricated from 1.2 mm thick (18 Gauge) SS304 sheets, 2 Nos. Indian Cooking Burners: Fitted with heavy	1.00	53862.00	Each	53862.00

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	cast iron pan supporters (typically 14"x14"), equipped with high-efficiency T-35 / G-9 burners suitable for heavy pots and 1 No. Chinese Cooking Burner: Fitted with a heavy-duty, cast-iron integrated Wok Ring / Splash Rim, with high-pressure T-22 / high-flame jet burner for rapid stir-frying with individual industrial grade control valves, pilot burner knobs for each main flame, and a main gas inlet pipe manifold compatible with commercial LPG / PNG configurations. The item Supported on 38 mm or 50 mm diameter SS304 tubular legs (1.5 mm thickness), ending in heavy duty bullet feet.				
(e)	Supply, fabrication, and installation of a heavy-duty, commercial-grade stainless steel stand specifically configured for below mentioned Combi Oven, Fabricated from 1.5 mm thick (16 Gauge) Stainless Steel Grade 304 (SS304) sheet with a brushed/satin finish. Reinforced underneath with heavy-duty SS channels for structural rigidity, Main legs constructed from 38 mm or 50 mm diameter SS304 tubular legs (minimum 1.5 mm wall thickness), rigidly cross-braced on three sides to ensure maximum stability under high-vibration kitchen environments. Equipped with heavy-duty adjustable stainless steel bullet feet or castor wheels as per site requirement etc complete as required.	1.00	25282.00	Each	25282.00
(f)	SITC of Stainless steel body 6 tray combi oven having capacity of 6 X GN 1/1. The oven have Steam, Hot Air, Combination Cooking modes with 5 adjustable fan speeds, touch screen control display, automatic clean mode, suitable for operation at 3 phase 380-415 volts AC supply with connected load not more than 8 KW etc complete with all accessories as required. (Make : MKN / UNOX / RATIONAL / FAGOR)	1.00	1021455.00	Each	1021455.00
(g)	WORK TABLE WITH 2 U/S DIMENSION (mm) 600 x 900 x 850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16 SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4 mm thickness, Top and body secured to	1.00	19786.00	Each	19786.00

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	12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet etc. complete as reqd.				
(h)	WORK TABLE WITH 2 U/S DIMENSION (mm) 1125 x 600 x 850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16 SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4 mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet etc. complete as reqd.	1.00	26381.00	Each	26381.00
(i)	MASALA TROLLEY TOP PAN 12 1/6 GN & WITH U/S DIMENSION (mm) 800 X 600 X 850 Two tier pans shall be constructed with AISI 304 stainless steel of 16SWG and supported with 38 mm Dia./38x38mm square tubing of 16SWG masala trolley cart pans all side shall be turned up 125 mm and hemmed outside welded to S.S legs hence in top pan can accommodate12 no of 1/6 GN pan OF 150 mm deep and pans shall be reinforced with 38 mm Dia. U shape pipe from both sides which can also be used as handle in the case of square pipe of 38 x 38 mm reinforced 25 mm round pipe as handle both the side. The pipe fitted with 4 no heavy duty of castor wheels of 125 mm Dia. meter with breaking system. Trolley shall be supply with 12 nos of 1/6 GN pan with lid etc. as reqd.	2.00	20886.00	Each	41772.00

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(j)	TWO DOOR UNDER COUNTER REFRIGERATOR DIMENSION (mm) 1200X600X850 Supplying, fixing, testing & commissioning of Under Counter Refrigerator with following FEATURES • Rounded corners,• Removable gasket for easy clean, Uniform cooling by forced air circulation, Digital temperature control, • Adjustable tray slides,• Food grade stainless steel unit with inside AISI 304,• Auto defrost,• Copper condenser and unit temp. of +2°C to +8°C.of Make BLUESTAR /TRUFROST /MG PRO/ CELFROST	1.00	120973.00	Each	120973.00
(k)	THREE DOOR UNDER COUNTER REFRIGERATOR DIMENSION (mm) 1800X600/700X850 Supplying, fixing, testing & commissioning of Under Counter Refrigerator with following FEATURES • Rounded corners,• Removable gasket for easy clean, Uniform cooling by forced air circulation, Digital temperature control, • Adjustable tray slides,• Food grade stainless steel unit with inside AISI 304,• Auto defrost,• Copper condenser and unit temp. of +2°C to +8°C.of Make BLUESTAR/TRUFROST /MG PRO / /CELFROST	1.00	122524.00	Each	122524.00
(l)	FOUR DOOR VERTICAL CHILLER DIMENSION (mm) 1200/1400 X 800-820 X 2000-2050 - Supplying, fixing, testing & commissioning of upright vertical Refrigerator as per specified make and model a unit made from ASAI 304 Stainless steel interior, with Four (4) no. of Doors with insulation & removable gasket for easy clean, Internal Temp+ 2 Deg C to+ 8Deg C & Refrigerant Gas: R-134 A, Uniform cooling by forced air circulation system with Copper condenser, and Removable & Adjustable shelve MAKE : BLUE STAR / TRUFROST /MG PRO//CELFROST	1.00	147338.00	Each	147338.00
(m)	SITC of heavy-duty, professional-grade auto adjustable electric salamander grill for commercial kitchens, pizzerias, and catering operations. Built with a robust stainless steel outer housing, with dual independent heating zones and tubular steel heating elements to efficiently melt cheese, the unit have min. 8-	1.00	105463.00	Each	105463.00

	stage power regulator for precise temperature control from +30 °C to +260 °C, alongside side ventilation slots and heat-insulating plastic handles etc complete as required. (Make :- Butler / SIRMAN / LINCAT / FAGOR / MKN)				
(n)	SS SQUARE GAS TANDOOR DIMENSION (mm) 750X750X850 +100 Gas tandoor Top constructed with AISI 304 stainless Steel of 16SWG with 100mm back splash. Tandoor frame shall be constructed 35 x35 mm of Stainless Steel angle of 3mm thickness .Tandoor 4 side exterior cladding of stainless steel 20 SWG and interior cladding of 18 SWG M S sheet all side 40 mm insulation of thick mineral wool. In front S.S. Ash removable opening with shutter shall be provided and in the bottom the tandoor fitted with (4) no. of heavy duty 125mm Dia. Non marking rubberized castors all with brakes. Tandoor fitted with Gas Burner and other accessories etc. as reqd.	1.00	49466.00	Each	49466.00
(o)	WORK TABLE WITH 2 U/S DIMENSION (mm) 750 x 750 x 850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16 SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4 mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet etc. complete as reqd.	1.00	19786.00	Each	19786.00
(p)	CHAPATI HOT PLATE WITH PUFFER DIMENSION (mm) 1350 X750X850 the Chapati Plate with Puffer top area shall be covered 2/3 portion for baking / cooking the Chapati both side and 1/3 portion is fitted with cast iron puffer bullet plate and four side angle guard. The Chapati cooking plate shall be of 15 mm thick polished mild steel plate sloped towards the front to a 25 mm wide grease gutter pitched to an opening to collect grease in a drawer and 12 x 24 cast iron puffer bullet plates. Panel/Frame–	1.00	59358.00	Each	59358.00

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	Exterior panel/cladding shall be constructed with AISI 304 stainless steel of 20SWG and the internal structure/ frame of Stainless steel 40 x40 mm angle of34 mm thick, front side detachable panel constructed with AISI 304 Stainless steel of 20SWG; rear and side are fixed cladding with louver for air ventilation. Verticals legs – AISI 304 stainless steel 50 mm Dia. meters /50x50 mm square tubing of 16SWG with bottom pipe shelf above 150 mm from the floor level, all four legs are fitted with adjustable SS bullet feet. Fitting- The equipment shall be duly connected with the best quality copper pig tails, needle valves and shall be will be fitted with 2 nos. of heavy duty V shape United / HP burners with indusial needle control knob to give evenly distributed heat, to be operated at 0.3 kg/cm2 (4.5 PSIG) gas pressure. The main line will be of 1" Dia. BSP 'C' Class ERW M.S. pipe and pressure tested etc. as reqd.				
(q)	CHAPATI COLLECTION TROLLEY DIMENSION (mm) 600X600X850 two tier with installed top pans shall be constructed with AISI 304 stainless steel of 18SWG with depth of 250 mm and supported with 38 mm Dia./38x38mm square tubing of 16SWG. the insulated pan shall accommodate 2 no of 1/1 GN pan with lid in each tier the pans all side shall argon welded to S.S legs. the trolley shall be reinforced with 38 mm Dia. U shape pipe from one sides which can also be used as handle in the case of square pipe of 38 x 38 mm reinforced 25 mm round pipe as handle both the side. The pipe fitted with 4 no heavy duty of castor wheels of 125 mm Dia. meter with breaking system etc. as reqd.	1.00	24183.00	Each	24183.00
(r)	WORK TABLE WITH 2 U/S DIMENSION (mm) 1500 x 600 x 850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16 SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4 mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no.	1.00	32977.00	Each	32977.00

	38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet etc. complete as reqd.				
(s)	SITC of Pickup Counter with FFOD Warmer of size min.1500X600X850+100mm, the Top shall be constructed with AISI 304 stainless Steel of 16SWG with100 mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. The unit shall be provided with AISI 304 stainless Steel bottom shelf of 20 SWG and constructed as cabinet type and cover from the three sides by AISI 304 stainless steel of 20SWG cladding Verticals Frame/legs – AISI 304 stainless steel 50 mm Dia.meters /50x50 mm square tubing of 16SWG above 150 mm from the floor level, all four legs are fitted with adjustable bullet feet etc. as reqd.	2.00	57160.00	Each	114320.00
(t)	SITC of Plate warmer of capacity 50 plates size min. 450x550x950 mm for commercial kitchen with power consumption not more than 400w with necessary support & wheels and accessories etc as required at site.	3.00	62037.00	Each	186111.00
(u)	Supplying and fixing of SS drain trough grating of size min. 1200X400mm fabricated from SS304 stainless steel 16 SWG necessary support and accessory etc as required at site.	1.00	48366.00	Each	48366.00
(v)	EXHUAST HOOD - Fabricating, supplying, fixing, installation and commissioning of exhuast hood of size 6100x1050x450mm, Exhuast Hood build with AISI 304 Stainless steel of 20 swg and hood filters framework shall be of 45°, all joint are fully welded, all hoods frame work are provided with removable AISI 304 Stainless steel 500 x 500 mm baffle filters, all filters are compatible by way of washable in Stainless steel bracket at all the four corners for the hanging of the hoods with the ceiling through screw rod. Note- anywarps, dents and other imperfections are not acceptable. The entire hood will be fabricated either in one or multipul pieces but after connecting it should be one piece wall type hood. Baffle	1.00	142899.00	Each	142899.00

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	filters- The filters shall have an outer frame constructed with AISI 304 stainless Steel of 18swg and inner "C" type strip of 25 x 32 x 25 mm in 22swg stainless steel 304, channels shall be welded, which will form a baffle for air movement. The filters and framework shall be provided with weep holes for draining of oil.				
(w)	EXHUAST HOOD - Fabricating, supplying, fixing, installation and commissioning of exhuast hood of size 1050x1050x450mm, Exhuast Hood build with AISI 304 Stainless steel of 20 swg and hood filters framework shall be of 45°, all joint are fully welded, all hoods frame work are provided with removable AISI 304 Stainless steel 500 x 500 mm baffle filters, all filters are compatible by way of washable in Stainless steel bracket at all the four corners for the hanging of the hoods with the ceiling through screw rod. Note- anywarps, dents and other imperfections are not acceptable. The entire hood will be fabricated either in one or multipul pieces but after connecting it should be one piece wall type hood. Baffle filters- The filters shall have an outer frame constructed with AISI 304 stainless Steel of 18swg and inner "C" type strip of 25 x 32 x 25 mm in 22swg stainless steel 304, channels shall be welded, which will form a baffle for air movement. The filters and framework shall be provided with weep holes for draining of oil.	1.00	24622.00	Each	24622.00
(x)	EXHUAST HOOD - Fabricating, supplying, fixing, installation and commissioning of exhuast hood of size 2850x900x450mm, Exhuast Hood build with AISI 304 Stainless steel of 20 swg and hood filters framework shall be of 45°, all joint are fully welded, all hoods frame work are provided with removable AISI 304 Stainless steel 500 x 500 mm baffle filters, all filters are compatible by way of washable in Stainless steel bracket at all the four corners for the hanging of the hoods with the ceiling through screw rod. Note- anywarps, dents and other imperfections are not acceptable. The entire hood will be fabricated either in one or multipul pieces but after connecting it should be one piece wall type hood. Baffle	1.00	66833.00	Each	66833.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	filters- The filters shall have an outer frame constructed with AISI 304 stainless Steel of 18swg and inner "C" type strip of 25 x 32 x 25 mm in 22swg stainless steel 304, channels shall be welded, which will form a baffle for air movement. The filters and framework shall be provided with weep holes for draining of oil.				
	PREPARATION AREA				
(a)	WORK TABLE WITH 2 U/S DIMENSION (mm) 1400 x600x850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16 SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4 mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet etc. complete as reqd.	1.00	32977.00	Each	32977.00
(b)	WORK TABLE WITH 2 U/S DIMENSION (mm) 1350 x600x850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16 SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4 mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet etc. complete as reqd.	1.00	32977.00	Each	32977.00
(c)	POTATO PEELER WITH STAND Capacity 20 kg - Supplying ,testing ,installation,& commissioning of Potato Peeler, the unit construction from AISI 304 Stainless steel fitted with Stainless steel peeling disc. Removable dishwashing safe container and bottom peeling disc. High efficiency	1.00	119422.00	Each	119422.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	ventilated motors for continuous operation and Automatic unloading system etc complete as required. (Make :- SAIMEX / FAGOR / MKN / VSG Kitchen equipments / Zenieth / Apollo)				
(d)	WET MASALA GRINDER/GRAVY MACHINE Capacity 200Kg/hrs The UNIT inner frame is made of SS 304 grade Stainless Steel. Grind bulk quantities of wet masala, chutney, ginger paste, garlic paste, red chili & coriander paste, tomato puree. The Unit with 5 hp 3phase Motor etc complete as required. (Make :- SAIMEX / FAGOR / MKN / VSG Kitchen equipments / Zenieth / Apollo)	1.00	69792.00	Each	69792.00
(e)	TILTING WET GRINDER Capacity 15 liters - Supplying, testing, installation & commissioning of Tilting Wet Grinder. The tilting wet grinder the unit construction with Stainless steel 3 phase 1.5 HP motor, Roller Stone Assembly is fitted with wiper to ensure 100% grinding etc as required. (Make :- SAIMEX / FAGOR / MKN / VSG Kitchen equipments / Zenieth / Apollo)	1.00	108565.00	Each	108565.00
(f)	Supplying and fixing of SS drain trough grating of size min. 1200X450mm fabricated from SS304 stainless steel 16 SWG necessary support and accessory etc as required at site.	1.00	69792.00	Each	69792.00
(g)	DOUGH KNEADER Capacity 50 Ltr - Supplying, testing, installation & commissioning of Dough mixer the unit with Dough Capacity 50 Kg & flour capacity -25 kg all parts in contact with food are entirely made of food grade stainless steel (bowl, spiral and rod) Removable/fixed bowl as per model , Stainless steel protection cover unit motor 3 phase with 2 speed Spiral, 4.5 kw etc as required. (Make : SAMMIC / SINMAG / SAIMEX / FAGOR / MKN)	1.00	93056.00	Each	93056.00
	DISHWASH AREA				
(a)	DISH LOADING TABLE WITH DASH BOARD & DOUBLE SINK TABLE DIMENSION (mm) 1800 x 700 x 850 + 100 The loading table top shall be constructed with AISI 304 Stainless steel of 14 SWG.	1.00	49466.00	Each	49466.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	Loading table with Double sink unit provided with Back splash of 100mm High Top secured 40 mm x 40 mm of 4 mm thick stainless steel angle frame work. Top from the bottom shall be supported vertically with 40mm x 4 mm thick strips with 200 mm gap the strips are reinforced with angle frame. The sink table provided with two nos of 500mm x 500mm x 300mm , sink bowl of 16SWG of AISI 304 stainless steel Sink Complete with 50mm Dia. lever handle operated waste outlet & rear connected overflow. The sink provided with 16SWG thick AISI 304 stainless Steel. 50mm high Removable perforated Strainer basket with handles compatible with sink size, Vertical Legs – Legs (no of legs shall be 6) shall be constructed with 38mm x 38mm x 16 SWG thick square pipe legs with adjustable SS bullet feet etc. as reqd.				
(b)	Supplying and fixing of Grease trap of size min. 740X400X400 mm fabricated from food grade SS304 stainless steel 16 SWG top, SS202 stainless steel 20 SWG undershelves, SS202 stainless steel 18 SWG pipe & SS Angle framework with supports and accessories etc as required at site.	1.00	23084.00	Each	23084.00
(c)	Supplying, fixing, testing & commissioning of Pre Rinse Unit (std) with 8 " mixing Faucet of, 6" Wall Bracket &1/2" NPT female inlet. Mixer knobs and shower handle, 44" Flexible stainless steel hose, 1.42 GPM Spray Valve should be made of polystyrene. A CP steel spring should be supporting the high pressure rubber hose etc as required. (Make: T&S / FISHER / ALUIDS / ZEPHYR)	1.00	41100.00	Each	41100.00
(d)	HOOD TYPE DISWASHER Capacity 60 racks/hrs - Supplying, fixing, testing & commissioning of Hood type dish washer with loading height 400 mm plus. Machine should be with inbuilt water softener, rinse pressure pump and detergent dispenser and drain pump. Supply with all electrical & plumbing fitting according to requirement etc complete as required. (Make : HOBART / WINTERHALTER / MEIKO / SILANOS)	1.00	410997.00	Each	410997.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

(e)	CLEAN DISH LANDING / EXIT TABLE DIMENSION (mm) 900X700X850+100 Clean dish landing table top shall be constructed with AISI 304 Stainless steel of 14 SWG, table front turned up 75mm, returned 40mm, turned down 50mm & in 12mm. Table provided with 100mm High back splash (side splash as per site). Top secured 35mmX 35mm X 3 mm thick SS angle. AISI 304 stainless steel. Vertical legs- Six (04) no. 38mm x 38mm x 1.6mm thick AISI 304 stainless steel square pipe legs with adjustable SS bullet feet .The legs are reinforced with 35x35mm stainless steel angle table frame etc. as reqd.	1.00	21105.00	Each	21105.00
(f)	CLEAN DISH RACK- DIMENSION (mm) 900X450X1800 CLEAN DISH RACK with 05 no. shelves of AISI 304 stainless steel of 18 SWG shelves 50 mm, front turned up 12mm @45 deg., each shelf provide "V" grooves length wise, Rear & both sides turned up 50mm & hemmed and rack provided Legs made in 38 mm round/Square AISI 304 Stainless Steel Pipes and feet. Reinforced Stainless Steel hat channel provided underneath each shelf, unit to be measured 1800 mm height x 450 mm wide and length 5 nos of shelves from AISI 304 Stainless Steel of 18SWG shall have 8mm Dia. perforated hole at 100mm c/c etc. as reqd.	1.00	25282.00	Each	25282.00
(g)	CLEAN DISH RACK- DIMENSION (mm) 750X450X1800 CLEAN DISH RACK with 05 no. shelves of AISI 304 stainless steel of 18 SWG shelves 50 mm, front turned up 12mm @45 deg., each shelf provide "V" grooves length wise, Rear & both sides turned up 50mm & hemmed and rack provided Legs made in 38 mm round/Square AISI 304 Stainless Steel Pipes and feet. Reinforced Stainless Steel hat channel provided underneath each shelf, unit to be measured 1800 mm height x 450 mm wide and length 5 nos of shelves from AISI 304 Stainless Steel of 18SWG shall have 8mm Dia. perforated hole at 100mm c/c etc. as reqd.	1.00	26381.00	Each	26381.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

(h)	SS POT wash sink unit –shall be constructed with AISI 304stainless steel of 14 SWG, the unit shall be provided with 200 mm high back splash. Sink front turned up 25mm, returned 40mm, down 75mm & in 12mm. Top secured to 40 x 40mm of 4 mm thick S.S. angle welded frame work reinforced with 38mmx 38mm x 16SWG thick AISI 304 stainless steel square pipe legs. With adjustable bullet feet. The legs support provided with 25mm x 25mm x 1.6mm thick SS pipe SHELF welded to legs at Rear & both sides and Front & three side provided with the stainless steel 20SWG apron etc. as reqd.	1.00	48366.00	Each	48366.00
(i)	POT RACK DIMENSION (mm) 1200 x 500 x 1800 3 tier pot rack unit constructed with pipe welded frame structure. The uprights should be made of 50 mm Ø/pipe with AISI 304 stainless steel of 16SWG and legs with adjustable SS bullet feet. Shelves should be made of 45 mm Ø pipe and internal grids of 40 mm Ø with AISI 304 stainless steel of 16SWG The gap between the grids shall be 60 mm maximum. The top side of the uprights should be sealed and properly rounded. Each rack will have 3 tiers spaced equidistant from each other, bottom shelf spaced 150 mm above floor level etc. as reqd.	1.00	48366.00	Each	48366.00
(j)	Supplying and fixing of SS drain trough grating of size min. 1200X450mm fabricated from SS304 stainless steel 16 SWG necessary support and accessory etc as required at site.	1.00	48366.00	Each	48366.00
	Dry store				
(a)	POTATO/ONION BIN DIMENSION (mm) 1200X600X900 POTATO/ONION, Bin: shall be constructed with AISI 304 stainless steel in two parts, splits into 50/50 ratio for potato, and onion storage respectively. The outer frame of storage bin shall be constructed with 25 x 25 square pipe of 16 SWG and the top frame is 30% of the bottom and four sides rear, top left, right and two partition/divider shall be constructed with 6 mm 0f AISI 304 stainless steel electroplated rod frame ,the bottom of the bin is constructed with 16 SWG AISI stainless	1.00	35176.00	Each	35176.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	Steel sheet and front shall be provided 2x350 mm hinged doors at the top and the bottom of each chamber and at center of the front shall be cover with 6 mm SS rod frame. The bin shall be above 150 mm from the floor etc. as reqd.				
(b)	PALLET DIMENSION (mm) 1000 X 600 X 150 (50 MM DIA. OR 50X50 MM SQUARE PIPE) 1000 X 600 X 150 Pallet/platform rack of the specified size constructed with AISI 304 stainless steel of OUTER FRAME 50 mm Dia. or 50x 50 mm square pipe of 16 SWG Rectangle box section frame structure with six legs with the height of 150 mm from the floor level legs are filled with adjustable SS bullet feet, frame work 45 X45 MM of 16SWG Rectangle grids gab shall be 75 mm in each grid The joint should be ground smooth and finished to match with frame work etc. as reqd.	1.00	20886.00	Each	20886.00
(c)	STORAGE RACK DIMENSION (mm) 900X450 X1800 Storage rack constructed for multi-purpose storage with 05 no. of AISI 304 stainless steel of 18SWG shelves 50 mm, front turned up 12mm @45 deg., each shelf provide "V" grooves length wise, Rear & both sides turned up 50mm & hemmed and rack provided Legs made in 38 mm round/Square AISI 304 Stainless Steel Pipes and feet . Reinforced Stainless Steel hat channel provided underneath each shelf, unit to be measured 1800 mm height x 450 mm wide etc. as reqd.	4.00	26381.00	Each	105524.00
	Pantry				
(a)	WORK TABLE WITH 2 U/S DIMENSION (mm) 1400x600x850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square	1.00	30779.00	Each	30779.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	pipe legs With adjustable SS bullet feet. etc as reqd.				
(b)	WORK TABLE WITH 2 U/S DIMENSION (mm) 1350x600x850+100 WORK TABLE unit top shall be constructed with AISI 304 stainless Steel of 16SWG with 100mm back splash. Table frame shall be constructed 35 x35 mm of Stainless Steel angle of 4mm thickness, Top and body secured to 12/25mm x 75mm x 25/12mm # 1.6 mm Thick S.S. hat type welded channel frame work. the unit shall be provide with 2 nos of under shelf made of AISI 304 18 SWG the bottom U/S fitted 150 mm above the ground level Vertical legs- Six (4) no. 38mm x 38mm x 1.6mm thick. AISI 304 S.S. square pipe legs With adjustable SS bullet feet. etc as reqd.	1.00	29679.00	Each	29679.00
(c)	SITC of Stainless steel body 2 groups Coffee making machine with boiler capacity (litres) – 11.0, consumes power not more than 3.50KW, suitable for operation at 220-240V / 50Hz / 1 Phase with supports and accessories etc as required at site. (Make :- ELEKTRA/ LACIMBALI /RANCILIO /CARIMALI)	1.00	403242.00	Each	403242.00
(d)	SITC of Coffee grinder having 2 kg Bean hopper capacity, Electronic programming, Stepless micrometric adjustment with Dose counter & Spotlight on filter holder etc complete with supports and accessories etc as required at site. (Make :- EUREKA/BUTLER/BARATZA)	1.00	116320.00	Each	116320.00
(e)	SITC of Professional Barista tool-kit having Milk Pitcher 500ml, Knockbox, Tamper 58mm, Micro fiber cloth with supports and accessories etc as required at site. (Make : WPM / MHW-3BOMBER/KROME BREW/BENKI)	3.00	14734.00	Each	44202.00
(f)	SITC of Blender having RPM – 38000, suitable for operation at Voltage – 220V, Frequency – 50Hz & consumes power not more than 1200W with accessories etc as required at site. (Make:- JTC/HAMILTON/ WARING COMMERCIAL)	1.00	40324.00	Each	40324.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

(g)	SITC of Display counter having min gross volume 650 Litre, Min. external dimensions (WxDxH) - 1500 x 650 x1200 mm & Internal dimenstions (WxDxH) - 1400x 650x 700 mm, Refrigerant used- R290, Temprature range- 2 to 10 degree centigrade, No of shelves- Base + 3 shelves with supports and accessories etc as required at site. (Make :- WESTERN/VOLTAS /TRUEFROST/ CELFROST/ FAGOR/ MKN	1.00	151991.00	Each	151991.00
(h)	SITC of Conveyor Bread with capacity of 250-300 slices per hour, fabricated from Stainless steel having 2 Year warranty and with supports and accessories etc as required at site. (Make :- GMG/ AKASA/ TOASTMASTER/ BUTLER)	1.00	116320.00	Each	116320.00
	Service area				
(a)	DROP IN HOT BAIN MARIE WITH SNEEZE GAURD DIMENSION (mm) 1800X700X850+300mm) Hot Bain Marie-top to be constructed with AISI 304 stainless steel of 18SWG without back splash and Bain Marie tank and body cover from all side with cladding, to be constructed with AISI 304 stain steel of 20SWG and depth shall be 250 mm The tank of the Bain Marie should be provided with an on-line connection /inlet and drain/outlet fitted with valve of 15mm Ø respectively. The unit consists AISI 304 of 5 No. 1/1 Gastro- norm container with lid .Top secured 35mm x 35mm x 3mm thick stainless steel welded angle frame work . The upright for holding acrylic sheet sneeze guard should be made of 18 SWG SS 304 pipe of 25mm Ø. Sneeze guard should be made of 10 mm thick acrylic sheet. The unit shall supply with 5 nos of 1/1 gn pan with lid Insulation & Electrical –All Bain Marie shall be provided with 35 mm box type glass wool insulation. The stainless steel water tank fitted 3 kw water immerse heater with rotary On-OFF switch, indicating lamps and imported Thermostat of JUMO or EGO. The complete unit. The unit should have 2 mtr supply 3 PIN POWER cord etc. as reqd.	3.00	105526.00	Each	316578.00
(b)	SITC of Single-door commercial vertical	1.00	82199.00	Each	82199.00

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

	showcase/display cooler of capacity 500-510 Litre having temp range- 0 to 10 degree centigrade, No. of shelves min. 5 nos. with supports and accessories etc as required at site. Make : BLUESTAR/ TRUFROST/ CELFROST/ WESTERN				
(c)	THREE DOOR UNDER COUNTER REFRIGERATOR DIMENSION (mm) 1800X600-700X850 Supplying, fixing, testing & commissioning of Under Counter Refrigerator with following FEATURES • Rounded corners,• Removable gasket for easy clean, Uniform cooling by forced air circulation, Digital temperature control, • Adjustable tray slides,• Food grade stainless steel unit with inside AISI 304,• Auto defrost,• Copper condenser and unit temp. of +2°C to +8°C.of Make and Model BLUESTAR/TRUFROST/CELFROST.	1.00	147338.00	Each	147338.00
91	Less credit for dismantled materials i.e. Conduit, PVC insulated Al. wires, Copper wires, Switch/ socket / Light & power box, fittings, Fans, MCB DB with MCB/ Isolator /DP/ TPN, Panel boards, ductable AC units, AC pipes any other dismantled material received during renovation considered @ 3% of SH- I I (Internal Electrical Installation) & SH-III (VRV/VRF system)		LS	(-)	-1215248.00
				Total Rs.	**47383043.00**

Addition.....Nil....,,.....
Deletion…….....Nil....…….
Correction..…Nil...,…….
Overwriting…..Nil.....

A.E. (E) (P)