



Chhattisgarh State Renewable Energy Development Agency (CREDA)

Near Energy Education Park, Village Fundhar

VIP (Air Port Road) Raipur 492015 (C.G.)

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E-BID DOCUMENT No. 15000/CREDA/BID/RE-03/SCIP /2018

**FOR SPV COMMUNITY IRRIGATION SCHEMES WITH FIVE YEARS
COMPREHENSIVE ONSITE WARRANTY AT ANYWHERE IN THE STATE
OF CHHATTISGARH**

Important Events and their schedule for this E-Bid are as follows-

S. No	Particulars	Date	Time	Place
1.	Pre Bid Meeting	27-09-18	12.00 PM	Office of Chief Engineer (RE – III), Head Office, CREDA
2	Submission of Bid Documents, Technical Bid	04-10-18	Till 11.30 AM	
3.	Examination of Bid Documents & Technical Bid	04-10-18	from 12.30 PM	
4.	Submission of Price Bid through http://cspc.co.in	04-10-18	Till 11.30 AM	http://cspc.co.in Web Portal
5.	Opening of Price Bid	04-10-18	After Technical Bid	At Bio Diesel Conference Hall, Near Energy Education Park, VIP Road, Raipur

Bid Document Cost:

*Document can also be downloaded from our website
<https://creda.cgstate.gov.in/> with the cost of Bid as mentioned in NIT,
which shall have to be deposited along with the Bid document*

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NOTICE INVITING LIMITED BID

CREDA invites sealed Bids from registered system integrators/contractors in CREDA for FY 2018-19 design, supply, installation, and commissioning of all allied works under Solar Community Irrigation Scheme with five years comprehensive onsite warrantee at anywhere in the state of Chhattisgarh.

S.N.	Item Description	Cost of Bid Document	EMD	Essentials*
1	All allied works under Solar Community Irrigation Scheme with five years comprehensive onsite warrantee at anywhere in the state of Chhattisgarh.	₹ 5,000/-	₹ 5.00 Lacs/-	<i>* for details pl see eligibility conditions of the Bid documents</i>

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5.	Opening of Price Bid	04-10-18	After Technical Bid	At Bio Diesel Conference Hall, Near Energy Education Park, VIP Road, Raipur

Note:-

- Price Bid shall be submitted online only at <http://www.cspc.co.in>,* however technical bid will have to be submitted in hard copy at Office of Chief Engineer (RE – III), Head Office, CREDA, Raipur. Bidders are advised to follow the instructions provided for Registration and E Submission Process accordingly.
- The bid forms, General Instructions to Bidders and other details including amendments/changed can be viewed/ downloaded from website creda.cgstate.gov.in
- Bid notice is also available on CREDA website creda.cgstate.gov.in the link notice or <http://www.cspc.co.in>.
- CREDA reserves all rights to accept/reject any or all Bids in full/part without assigning any reasons.
- Any corrigendum in regards to the tender shall only be published on CREDA's website under notice section at <https://creda.cgstate.gov.in>

(Rajiv Khare)
Chief Engineer, CREDA

B. Check List

To ensure that your Bid submitted to CREDA is complete in all respects, please go through the following checklist & tick mark for the enclosures attached with your Bid:

S.No.	Description	Attached / Not Attached	Page no. if attached
1	Proof of submission of Bid Fee and EMD		
2	Proof of having registration in CREDA for FY 2018-19.		
4	Proof of experience of Supply & Installation of Solar Pump/ Water Distribution network/ Civil works such as construction of intake well/Sump Well/ Buffer Well/ RCC Overhead Tank /stairs cum platform / ramp for pump of minimum 30 lakh.		
5	Copy of approved test certificate/ Acknowledgement of minimum 10 HP SPV surface Pump by MNRE accredited Test Center in the name of Bidder.		
6	Balance Sheets of last three financial years certified by a registered Chartered Accountant showing positive net worth and overall average annual turnover of 5 Crore.		
7	The original document duly signed & sealed on each page, as a confirmation of acceptance of Terms & Conditions (T&C)		
8	Declaration of the supplier about any relatives working with CREDA		

Details of EMD & Bid Document Fee Attached

S.No.	Description
1	Earnest Money Deposit - Earnest Money Deposit of ₹ 5.00 lakh /-, submitted in the form of Demand Draft/Banker's Cheque/ NEFT/RTGS, drawn on Bank,Branch, bearing DD/BC No..... dated.....is attached herewith.
2	Bid Document Fee - Bid Document Fee of ₹ 5000.00 /-, submitted in the form of Demand Draft/Banker's Cheque/ NEFT/RTGS, drawn on Bank,Branch, bearing DD/BC No..... dated.....is attached herewith.

(Sign & Seal of the Manufacturer)

C. UNDERTAKING OF THE BIDDER

I/We have read carefully and examined the notice inviting Bid, schedule, General Rules and terms and conditions of the contract, special conditions, Schedule of Rates and other documents and Rules referred to in the Bid document for the supply.

I/We hereby Bid my rates for the execution of the work for CREDA as specified within the time stipulated in the schedule in accordance with all aspects with the specifications, designs, drawings and instructions with such conditions so far as applicable.

I/We agree to keep the Bid open for Ninety (90) days from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of ₹5.00 lakh /- is hereby forwarded as earnest money in the form of crossed demand draft payable to CREDA at Raipur (C.G.). If I/We, fail to commence or complete the sanction ordered in specified time I/We agree that the CREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the said Earnest Money absolutely. The said Earnest Money shall be retained by CREDA towards security deposit to execute all the works referred to in the Bid documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA.

I/We hereby declare that I/We shall treat the Bid documents, specifications and other records connected with the work as secret/confidential and shall not communicate information derived there- from to any person other than a person to whom I/We have authorized to communicate the same or use the information in any manner prejudicial to the safety of CREDA/Government.

I/We shall a Bid to all the laws and shall be responsible for making payments of all the taxes, duties, levies and other Govt. dues etc. to the appropriate Govt. departments.

Our state sales tax registration TIN No. is _____ and CST registration No.

_____. The PAN No. under the Income Tax Act is _____

I/We shall be responsible for the payment of the respective taxes to the appropriate authorities and should I/we fail to do so, I/we hereby authorize CREDA to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

Dated:

Signature

Place:

Name of Bidder with seal

Witness

Signature:

Name:

Postal Address:

D. General Information about this Bid

S.No.	Particulars	Details
1	E.Bid No.	E-BID DOCUMENT No. 15000/CREDA/BID/RE-03 /SCIP /2018, Date 20-09-2018.
2	Particulars of the work	Design, Supply, Laying/ Installation, and Commissioning of: a. SPV Pumps with Fixed MMS as per Scope of work b. Establishment of water distribution network c. Allied civil works as as per Scope of work
4	Time Period for completion of the work	Within 03 Months from the date of allocation of Work.
5	Pre-Bid Meeting	From 12.00 PM Date 27-09-18
6	Mode of submission of Bids	Technical Bid – Off Line Price Bid – E Bidding through http://www.cspc.co.in website.
7	Last date and time for submission of Technical Documents (Offline)	Till 11.30 Hours Date 04-10-2018.
8	Last date and time for submission of Bid (Online)	Till 11.30 Hours Date 04-10-2018.
9	Period of validity of rates for acceptance	Three months from the date of opening.
10	Date and time of opening of Technical Bid	From 12.30 hours Date 04-10-2018.
11	Date and time of opening of Price Bid	After Technical bid Date 04-10-2018 or on the next date.
12	Place of opening Bid	At Bio Diesel Conference Hall, Near Energy Education Park, VIP Road, Raipur.

E. Eligibility Criteria:-

- E-1 Bidder should be registered in CREDA for FY 2018-19.
- E-2 Bidder should have direct experience of Supply & Installation of Solar Pump/ Water Distribution network/ Civil works such as construction of intake well/Sump Well/ Buffer Well/ RCC Overhead Tank /stairs cum platform / ramp for pump of minimum 30 lakh.; a list and Performance Certificate issued by Govt/Govt Undertaking shall be mandatory to submit as a proof for the same.
- E-3 Bidder should have to submit copy of approved test certificate/ Acknowledgement of minimum 10 HP SPV surface Pump by MNRE accredited Test Center in the name of Bidder.
- E-4 Bidder must have a positive net worth as on 31-03-2018.
- E-5 Bidders should have an overall average annual turnover of ₹ 5.00 Crore of last three Financial Years ending on 31st March of each FY i.e. FY 2015-16, FY 2016-17, FY 2017-18. Bidder coming into existence after 2015-16 must have an overall average annual turnover of ₹ 5.00 Crore
- E-6 Bidder will have to submit audited copy of balance sheet certified by a registered chartered accountant as a proof for point no. E-4 and E-5.
- E-7 The Bidder should have valid GST registration certificate. A copy of which should be enclosed
- E-8 Authorization of person representing Bidder from Director / Proprietor / Partner of the Firm/ Company of the Bidder .
- E-9 Bidders who are Blacklisted by CREDA or any other Govt Agency/ Department / UT, will not be allowed to participate in this Bid. System integrator whose registration has been suspended by CREDA due to bad performance or other reasons, shall not be eligible to participate in Price Bid.
- E-10 Bidders who has any litigation pending in any court with CREDA on the date of opening of the Bid shall not be eligible for this Bid.
- E-11 Any information/data submitted/rendered by the applicant/Bidder if found false/forged/wrong would entitle CREDA to reject/cancel the Bid submitted by Bidder.

F. INSTRUCTIONS TO THE BIDDERS

1. The Bidder is expected to examine all instructions, forms, terms and specifications as mentioned in the Bid document. Failure to furnish all information required by the Bid documents or submission of a Bid not substantially responsive to the Bid Document in every respect will be at the Bidder's risk and is likely to result in out-right rejection of the Bid.
2. **LOCAL CONDITIONS:**

It shall be imperative on each Bidder to fully inform him of all local conditions and factors, which may have any effect on the execution of the works covered under these documents and specifications. AGENCY shall not entertain any request for clarifications from the Bidder, regarding such local conditions.
4. **CLARIFICATION OF BID DOCUMENTS:**
 - A. A prospective Bidder requiring any clarification of the Bid Documents may contact AGENCY in writing or by Fax at the AGENCY's mailing address indicated in the Invitation for Bid.
 - B. Verbal clarifications and information's given by the AGENCY or its employees or its Representatives shall not be in any way entertained.
5. **AMENDMENT OF BID DOCUMENTS:**

At any time prior to the submission of the Bid or prior to the opening of the financial Bid the AGENCY may, for any reason, whether at its own initiative or in response to a clarification requested by the Bidder, modify the Bid documents by amendments.
6. **BIDDING PROCESS-** For ease of accessing the e-bidding website and registration the following is to be done by bidder –
 - A. Visit <http://www.cspc.co.in>
 - B. Click on e-bidding button on right hand side of the page.
 - C. The user will be directed to e-bidding page where all information regarding registration is available along with helpline details.
 - D. The Bidder must submit attested copies of all legal documents pertaining to the constitution of their Concern as applicable, along with the Tender, to authenticate their identity, such as affidavit of Sole Proprietorship/Partnership Deed/ Registration Certificate/ Certificate of incorporation of the Company/Memorandum of Association of the Company and Power of Attorney authorising a person to represent the firm in all matters with respect to the Bid.
 - E. Price Bid shall be submitted online only at <http://www.cspc.co.in> however technical bid will have to be submitted in hard copy. Bid Documents (including Technical Bid and samples) must reach At Office of Chief Engineer (RE – III), Head Office, CREDA latest by 11.30 AM on 04.10.2018. Tenders submitted after scheduled time and date shall not be considered.
 - F. Technical Bid Documents should be submitted in prescribed manner in separate envelopes duly super scribed and placed as follows- (A) Bid Fees and EMD, (B) Eligibility Documents as per point E(1) to E(11) mentioned above (C) Technical Bid and Complete bid document in original duly signed by authorized signatory on each & every page of the bid document.
 - G. The envelopes must be clearly marked as “(A) Bid Fees and EMD / (B) Eligibility Documents / (C) Technical Bid and Complete bid document in original / of **“E-BID DOCUMENT No. 15000/CREDA/BID/RE-03 /SCIP /2018, Date 20-09-2018 DUE ON 04-10-18”**”.

7. The Specifications of Solar Sprayer should be as specified in the bid.
8. Bidder shall have to submit details of GST & PAN registration numbers issued by the appropriate authority
9. The documentary evidence for meeting the eligibility criteria must mandatorily be submitted along as per check list with bid in prescribed manner.
10. Each offered solar module should have RFID & I-V curve measured with a sun simulator of a SPV Module Manufacturer reregistered/approved by MNRE with record of suitable calibration reference, as per guidelines of MNRE.
11. Bidders must enclose the safety procedure & manual.
12. When Technical Bid Documents & Eligibility documents are delivered through messenger, it should be submitted at Office of Chief Engineer (RE - III), Head Office, CREDA latest by 11.30 AM on 04.10.2018. Nobody is authorized to receive or grant receipt for tender delivered on behalf of CREDA.
13. Bidder should quote their rates considering variation of site conditions, variation in price of different components and keeping the quantum and quality of work in mind. If CREDA anticipates that rate is abnormally low or high, CREDA shall have liberty to amend the rates or reject the bid.
14. **VALIDITY:** Full descriptive particulars and complete specifications should accompany the offer. Offers should be kept open for acceptance for at least three months from the date of opening. After finalization of this Bid the approved rates shall be valid till one year from the date of award; however CREDA shall have liberty to increase or decrease this validity if needed.
15. The terms, conditions and specifications mentioned in Bid document shall be binding on the Bidders and no condition or stipulation contrary to the conditions shall be acceptable. It may please be noted that the Bidders who do not accept terms and conditions stipulated in this Bid documents, their offers shall be liable to be rejected out-rightly without assigning any further reasons.
16. Each page of Bid document & enclosures shall be signed by the Bidder and seal affixed. All the pages of the documents issued must be submitted along with the offer. In case of any corrections / alterations in the Bid, the Bidder should attest the same; otherwise Bids may not be considered.
17. CREDA reserves the right (i) to reject or accept any or all tenders wholly or partly without assigning any reason on the grounds considered advantageous to CREDA, whether it is the lowest tender or not and (ii) to split the quantities against the tender on more than one firm for the same items/ work. No reason will be assigned by CREDA for this and will be binding on the bidders. The bidder who had quoted the lowest price shall be preferred for placing order. Due to large quantum of work & limitation of the time period for completion of the work CREDA shall take consent from more than one bidder if they agree to work on rates standardized by CREDA. CREDA may undergo

agreement with those eligible bidders who give consent to work on rates standardized by CREDA and may place work orders to them. **Rates approved through this tender may be standardized for all eligible tenders to work in year 2018-2019 and shall be valid till 31-03-2019.** However CREDA reserves right to curtail or extend this period.

18. Offers through Telegraph/ Fax/Emails or open offers etc. received shall be summarily rejected.
19. All the Bidders shall essentially indicate the break-up of prices as shown in Price Bid. In case any of the charges are not included in the quoted prices, the same shall be clearly shown as extra, indicating specifically the rate/scale of such charges. The lowest prices quoted shall be considered.
20. **BID DOCUMENT FEE AND EARNEST MONEY:**
Each bidder should submit Bid Document Fee and earnest money 5 Lakh for participating in bid in the form of Demand Draft/Banker's Cheque/ NEFT/RTGS as mentioned in the NIT of "**E-BID DOCUMENT No. 15000/CREDA/BID/RE-03 /SCIP /2018**", **Date 20-09-2018**, in a separate envelope else they will summarily be rejected and returned. Bid Document Fee, EMD submitted in any other form e.g. Cash/Bank Guarantee etc shall not be accepted. [Exemption from EMD shall be given only to those SSI units of Chhattisgarh State who submit the competency certificate on which it should be clearly mentioned that, "the company registered in Chhattisgarh for manufacturing of that particular product"]. CREDA Competency Certificate will not be considered as EMD for this Rate Contract Bid.
21. A pre-bid meeting shall be organized on 27-09-2018 at 12.00 PM at Bio Diesel Conference Hall Near Energy Education Park Raipur, to explain the terms & conditions of the tender and to clarify doubts of the tenderers so that all doubts and confusions are resolved before the tender is submitted. Only one authorized representative of the parties who fulfils the primary eligibility conditions as mentioned in NIT and desire to purchase/download the tender document shall be allowed to participate in the said meeting. Amendments/clarifications, if any arising during pre-bid meet, shall be uploaded on creda.cgstate.gov.in.
22. **FORFEITURE OF EARNEST MONEY DEPOSIT:**
It should be clearly understood that in the event of Bidder failing to enter into the agreement in the prescribed format on their quoted rates and also fails to execute assigned works within stipulations, if he is so communicated within the validity period of the offer, the full amount of earnest money shall be forfeited and Bidder will be debarred from future business with CREDA. CREDA's decision in this respect will be final and binding on the Bidder.
23. **PRICE:**
The prices quoted should be firm and F.O.R. destination including GST payable on the bill of supply and installation / services.

24. **ENGINEERING DOCUMENT & TEST CERTIFICATE:**

Bidders will have to submit Engineering Documents with technical details, drawings, Specifications & Performance Report from any certified laboratory.

25. **SAMPLES:**

If Require CREDA may inspect the consignment before dispatch of the material at shall be delivered/ accepted as per the scope of work and specifications, as get it tested in accreted laboratory at its own cost.

26. **TAX OBLIGATIONS:**

TDS for Income Tax, GST, Civil Work etc shall be recovered under various acts and deposited with the appropriate authority. Eligible Bidder will have to submit break up of cost and taxes before execution of agreement with CREDA, so as to ensure tax deposition as per Govt. Rules accordingly. .

27. **JURISDICTION OF THE COURT:**

Any dispute arising out of the contract shall be subject to the jurisdiction of court at Raipur, Chhattisgarh.

G. GENERAL CONDITIONS OF CONTRACT

- 1. DEFINITIONS:** In writing General Conditions of Contract, the specifications and bill of quantity, the following words shall have the meanings hereby indicated, unless there is something in the subject matter or content inconsistent with the subject.

CREDA shall mean the Chhattisgarh State Renewable Energy Development Agency represented through the CEO.

Work shall mean any work entrusted to the Bidder as mentioned in the scope of work and sanction order.

The "Engineer in charge" shall mean the Engineer or Engineers authorized by CEO, CREDA for the purpose of this contract. Inspecting Authority shall mean any Engineering person or personnel authorized by CREDA to supervise and inspect the erection of the SPV Pump.

"The Eligible SI/Bidder" shall mean the Bidder awarded with the contract or their successors and permitted assigns. Contract Price shall mean the sum named in or calculated in accordance with the provisions of the contract as the contract price. General Conditions shall mean the General conditions of Contract.

"Specifications" shall mean the specifications annexed to these General Conditions of contract and shall include the schedules and drawings attached thereto or issued to the eligible SI/Contractor from time to time, as well as all samples and pattern, if any,

"Month" shall mean calendar month. "Writing" shall include any manuscript, typewritten, printed or other statement reproduced in any visible form whether under seal or written by hand.

- 2. CONTRACT DOCUMENT:**

The term "Contract" shall mean and include the General conditions, specifications, schedules, drawings, sanction orders etc., issued against the contract schedule of price or their final general conditions, any special conditions applying to the particular contract specification and drawings and agreement to be entered into. Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian contract Act or any other Act in vogue or by any person of common knowledge and prudence.

- 3. MANNER OF EXECUTION:**

Execution of work shall be carried out in an approved manner as outlined in the technical specifications or where not outlined, in accordance with desired Specifications laid down by CREDA, to the reasonable satisfaction of the Engineer.

- i) The eligible SI shall conduct a detailed survey of site and submit Application of Beneficiary along with Processing Fee, necessary documents and survey details in concerned District Office of CREDA in prescribed manner.

- ii) District / Regional Office CREDA shall examine these reports and after satisfaction forward these to concerned Chief Engineer, RE-03 of Head office of CREDA for approval.
- iii) The SI/Contractor shall start work within 15 days after the date of issue of work Order. Work order will be given to the chosen System Integrator only after execution of the agreement with CREDA.
- iv) All the materials required for supply of solar Sprayers as per Work Order issued shall be kept at site in the custody of the SI/Contractor. CREDA shall not be responsible for any loss or damage of any material during supply/ installation.
- v) All the electrical works (if needed) should be done as per Indian electricity Act. The persons engaged for carrying out electrical works should have a valid license of required category accordingly.
- vi) After installation and joint inspection will be done in presence of beneficiary, SI/Contractor and CREDA and after successful commissioning of Solar Sprayers and its approval from CREDA a JCC will be signed and the claim will be forwarded for payments as per guidelines and procedures of CREDA.

4. VARIATIONS, ADDITIONS & OMISSIONS:

CREDA shall have the right to alter, amend, omit, split or otherwise vary the quantum of work, by notice in writing to the SI/Contractor. The eligible SI/Contractor shall carry out such variation in accordance with the rates specified in the contract so far as they may apply and where such rates are not available; those will be mutually agreed between CREDA and the eligible SI/Contractor.

5. INSPECTION DURING ERECTION:

The Engineer in Charge or his authorized representative (s) shall be entitled at all reasonable times to inspect and supervise and test during installation and commissioning. Such inspection will not relieve the eligible SI/Contractor from their obligations under this contract. Material can be inspected before dispatch by the authorized representatives of CREDA at the factory at the cost of the eligible SI, if desired by CREDA.

6. COMPLETION OF WORK:

Time being the essence of contract, all works specified in the work orders shall be completed within the time schedule prescribed in the Sanction order.

7. ELIGIBLE SIs DEFAULT LIABILITY:

CREDA may by written notice of default to the eligible SI/Contractor, terminate the contract in circumstances detailed hereunder:

- (a) If in the opinion of the CREDA, the eligible SI/Contractor fails to complete the work within the time specified in the sanction order or within the period for which extension has been granted by CREDA to the eligible SI/Contractor.

- (b) If in the opinion of CREDA, the eligible SI/Contractor fails to comply with any of the provisions of this contract.
- (c) In the event of CREDA terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to engage another eligible SI/Contractor or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI/Contractor shall be liable to CREDA for any additional costs or any losses caused to CREDA as may be required for the completion of erection of the Solar Sprayers and or for penalty as defined under this Bid document until such reasonable time as may be required for the final completion of the work.
- (d) In the event CREDA does not terminate the contract as provided in paragraph (a) the eligible SI/Contractor shall continue performance of the contract, in which case he shall be liable to CREDA for penalty for delay as set out in this Bid document until the work is completed.
- (e) The maximum liability of the bidder is limited to 100% of contract value.

8. FORCE MAJEURE:

The eligible SI/Contractor shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as of God, acts of public, enemy, naxal problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that the contract, shall within 10 (ten) days from the beginning of such delay notice the CREDA in writing of the cause of delay. CREDA shall verify the facts and grant such extension as facts justify. Delay in supply of any accessories of Solar Sprayers by the related vendors, to whom the Bidder has placed order, shall also not be treated as force majeure.

9. REJECTION OF WORKS:

In the event of any of the material supplied/ work done by the eligible SI/Contractor is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA shall either reject the material and/ or work and advise the eligible SI/Contractor to rectify the same. The eligible SI/Contractor on receipt of such notices shall rectify or replace the defective material and rectify the work, free of cost. If the eligible SI/Contractor fails to do so, CREDA may,

- i At its option replace or rectify such defective materials and/ or work and recover the extra cost so involved from the eligible SI/Contractor plus fifteen percent service charges of the cost of such rectification, from the eligible SI/Contractor and/ or terminate the contract for balance work/ supplies with enforcement of penalty as per contract
- ii Defective materials/ workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI/Contractor shall be liable for any loss/ damage sustained by CREDA due to defective work.

10. EXTENSION OF THE TIME:

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA in writing of his claim for an extension of time. CREDA on receipt of such notice may agree to extend the contract/delivery date of the Solar System as may be reasonable but without prejudice to other terms and conditions of the contract.

11. MAKES OF EQUIPMENTS TO BE USED IN THE WORK:

The eligible SI has to ensure that equipments as per Technical Requirements of guidelines of CREDA as complied with. The eligible SI/Contractor has also to ensure that he will use only components of approved vendors of CREDA. The material/works for which CREDA/MNRE or BSI or ISI specification is not available, engineer-in-charge of the works will examine and approve the material/works, preferably of all makes on which CREDA has report of satisfactory performance. Test certificates for all major equipments should be submitted to the engineer-in-charge of the works before installation of the same.

12. WARRANTEE PERIOD AND POST INSTALLATION SERVICES:

The work done/ material supplied by the eligible SI/Contractor should be warranted for satisfactory operation and against any defect in material and workmanship including Pipe lines with all fittings, allied civil works, Pumps, Controllers and other balance of equipments, at least for a period of 5(five) years, from the date of commissioning of the systems including other works as per scope of work. For Solar Pumps warrantee on SPV Modules shall be for 10 (ten) years from the date of commissioning of the SPV Pumps must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and not less than 80% at the end of 25 years. The above warrantee certificates shall be furnished to the CREDA for approval. Any defect noticed during this period should be rectified by the supplier free of cost upon written notice from CREDA provided such defects may be due to bad workmanship or bad materials used. The warrantee period shall be extended by the period during which the plant remains non-operative due to reasons within control of the eligible SIs. This warrantee must be an unconditional onsite warrantee and the eligible SI/Contractor will have to replace the defective material within 7days positively from the date of information given to him. Care should necessarily be taken to make the SPV Pumps operational, once the reporting of the fault/non operational status is done, within a week. If the SPV Pumps is not made operational within 7 days CREDA may rectify the same at the cost of SI, and the warrantee period shall be extended for a month for the same. This warrantee must be an unconditional onsite warrantee and the eligible SI/Contractor will have to replace the defective material within 7 days positively from the date of information given to him.

System Integrators shall have to establish their service stations in the allocated area and shall have to keep sufficient quantity of spares and man power to ensure proper service network for taking care of smooth functioning of SPV Pumps installed by them. SI/Contractor shall have to give a toll free number to register complaints.

13. TERMS OF PAYMENT:

The following terms of payment shall apply for the Bid: -

- a. 95% of the eligible payments as per the work order after satisfactory completion & performance test of **all allied works** at site with proper handing over.
- b. Balance 05% of the eligible payments shall be retained by CREDA as Security Deposit for a period of 60 months. However the same may be released to SI/contractor on submission of TDR (duly pledged in favour of CREDA) of equivalent amount issued by a Scheduled Bank in prescribed format valid for a period of at least five years issued by a scheduled bank.

14. PENALTY FOR DELAY IN COMPLETION OF CONTRACT:

If the eligible SI/Contractor fails to complete supply, testing and commissioning etc, within the phased time schedule specified in the sanction order or any extension granted there to, CREDA will recover from the eligible SI/Contractor as penalty a sum of one percent (1.0%) of the system price of the uncompleted portion of the work for each calendar month of delay or part thereof. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed 5% (five percent) of the cost.

Penalty may be recovered from payments due or by invocation of performance security. CREDA may also debar the SI from future business for upto 3 years in case of non performance of work in time limit.

15. PERFORMANCE SECURITY:

The Performance Security shall be 5% of the eligible payments and shall be deposited in manner under clause no. 13. For the purpose of 13(b) the EMD may be considered to be converted into part of performance security. EMD shall be refunded only upon submission of at least equal amount towards Performance Security or else EMD shall be deemed to be converted into Performance Security.

- 16. INSURANCE:** The eligible SI/Contractor shall arrange insurance coverage for the materials and **Solar Pumps** at his/ beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The eligible SI/Contractor shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under workmen's compensation Act and other applicable State/ Central laws. CREDA shall not bear any responsibility on this account.

17. PENALTY DUE FROM THE ELIGIBLE SI/CONTRACTOR :

All cost of damages for which the eligible SI/contractor is liable to the CREDA, will be deducted from any money due to the eligible SI/ Contractor including the Security Deposit.

18. ELIGIBLE SI'S RESPONSIBILITY:

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of **entire system/ works** by CREDA, if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI/Contractor. If in any case the eligible SI/Contractor does not complete the work as per the sanction orders issued to them then CREDA may take over the task & complete the project at the cost of eligible SI/Contractor.

19. RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE:

If any loss or damage occurs to the work or any part thereof or materials/ plant/ equipments for incorporation therein the period for which the eligible SI/Contractor is responsible for the cause thereof or from any cause whatsoever, the eligible SI/Contractor shall at his own cost rectify/ replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer. The eligible SI/Contractor shall also be liable for any loss or damage to the work/ equipments occasioned by him in course of any operation carried out to him during performing the contract.

20. RESPONSIBILITY TOWARDS THE WORKMAN OR OUTSIDERS:

The eligible SI/Contractor shall have to take insurance coverage from any authorized Insurance Company against Workmen compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Sanction order. The eligible SI/Contractor shall ensure all safety measures during execution and repairs of the work. CREDA, will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or execution or repairs of work. All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI/Contractor shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations.

21. NON-ASSIGNMENTS:

The eligible SI/Contractor shall not assign or transfer the sanction orders issued as per this contract or any part thereof without the prior approval of CREDA.

22. CERTIFICATES NOT TO AFFECT RIGHTS OF CREDA:

The issuance of any certificate by CREDA or any extension of time granted by CREDA shall not prejudice the rights of CREDA in terms of the contract nor shall they relieve the eligible SI/Contractor of his obligations for due performance of the contract.

23. SETTLEMENT OF DISPUTES THROUGH ARBITRATION:

- i. Except as otherwise specifically provided in the contract, all disputes concerning questions of fact arising under the contract shall be decided by the Chief Executive Officer (CEO), CREDA provided a written appeal by the eligible SI/Contractor is made to CREDA. The decision of the CEO, CREDA shall be final and binding to the all concerns.
- ii. Any dispute or difference including those considered as such by only of the parties arising out of or in connection with the contract shall be to the extent possible be settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration.

24. LAWS GOVERNING CONTRACT:

The contract shall be constituted according to and subject to the Laws of India and jurisdiction of the High Court of Bilaspur, Chhattisgarh.

Compliance with Labour Regulations-During continuance of contract, the contractor shall abide at all times by all applicable existing labour enactment and rules made there under, regulations, notifications and bye laws of state and central Govt or local authority that may be passed/issued or may be issued.

25. LANGUAGE AND MEASURES:

All documents pertaining to the Contract including specifications, schedules, notice correspondences, operating and maintenance instructions, drawings or any other writings shall be written in English / Hindi language. The metric system of measurement shall be used in this contract.

26. CORRESPONDENCE:

- i. Any notice to the eligible SI/Contractor under the terms of the contract shall be served by registered mail to the registered office of the eligible SI/Contractor or by hand to the authorized local representative of the eligible SI/Contractor and copy by post to the eligible SI's principal place of business.
- ii. Any notice to CREDA shall be served to the Director, CREDA, Raipur in the same manner.

27. SECRECY:

The eligible SI/Contractor shall treat the details of the specifications and other documents as private and confidential and they shall not be reproduced without written authorization from CREDA.

28. AGREEMENT:

The successful eligible SI/Contractor shall have to enter into an agreement with the Director, CREDA in the approved contract agreement form within 07 days of the receipt of call from CREDA.

29. BID EVALUATION CRITERIA

- a. Offer of only those parties who are found qualifying based on Technical Evaluation Criteria will be taken into further consideration and prices of only those parties qualifying based of these criterion will be opened.
- b. Bids shall be evaluated on the basis of lowest total rates (incl supply, installation & Commissioning) with GST.
- c. CREDA retains right to negotiate rates with L-1 Bidder.
- d. Conditional Bids shall not be accepted.
- e. However CREDA shall have rights and liberty to call any /other parties to work on approved rates as and when required in accordance with quantum of work and scheduled time limits for completion of targets.

30. ALLOCATION OF TARGETS AND AREA OF WORK

- (a) L1 bidder will be given preference for allocation and they will be awarded min. 25% of the Work.
- (b) Initially all the eligible SI will be awarded with equal nos of work. However further allocations shall be made on the basis of their performance subsequently.

We (on behalf of Eligible SI/Bidder) have read all the above stated details & accept to comply with it in total.

(Name, Signature & Seal of the Bidder)

SCOPE OF WORK – For Solar Pump

The scope in brief will be as follows-

1. Survey of Sites, designing, supply, installation & commissioning of SPV Pumps as per design and specifications approved by CREDA, on turnkey basis. Tenderder shall have to take approval of the engineering documents, Bill of Materials and samples from CREDA prior to commencement of the work. Five years unconditional onsite warrantee for manufacturing defects shall be required for each of the system after successful commissioning and proper handing over.
2. Solar pumps upto 05 hp/4800 cap. should be installed with Dual Axis MMS. Whereas Solar Pumps above 05 Hp/4800 watt capacities should be installed with Fixed MMS.
3. The scope of work shall also includes the followings:
 - Survey of Sites, estimation of yield of bore well/ Water Source, Submission of site clearance certificate and yield report where the SPV Pumps are to be installed. A layout plan of the site should also be submitted clearly indicating the identified location for installation of SPV Modules, Structures and other components shall be installed. Work order shall be issued only after receipt of satisfactory reports suitable for system installation. SI/Contractor shall furnish all necessary information to beneficiary for SPV Pump Warrantee, Do & Don'ts etc. so as to avoid further misunderstandings and disputes.
 - Detailed planning of time bound smooth execution of project.
 - Design, supply, installation & commissioning of SPV Pumps of required capacities as per design and specifications approved by CREDA, on turnkey basis.
 - Providing User Manuals and Warrantee Cards to beneficiary / CREDA.
 - SI shall have to submit JCCs within 15 days of Installation and Commissioning of SPV Pumps in District Office of CREDA.
 - Unconditional onsite warrantee for manufacturing defects for Five years faultless operation, assure inventory for maintenance.
 - Providing Prompt Service Facilities to customers/ beneficiaries.
 - Risk liability of all personnel associated with implementation and realization of the project.
 - Training of at least two persons nominated by user, on the various aspects of design and maintenance of the offered system after commissioning of the system.
 - The eligible SI/Contractor shall maintain sufficient inventory of the spares to ensure that the system can be made functional within 7 days from the communication of breakdown of the system during currency of the warrantee period.
 - The eligible SI/Contractor shall run the system on trial basis and shall

closely monitor the performance of the system before handing over the system, so that the assured water discharge can be estimated for monitoring of the performance of the system. CREDA shall examine the water discharge and ascertain if the discharge is adequate with reference to the capacity of the SPV Pump.

- Performance Guarantee Test: Successful performance guarantee test to demonstrate the rated capacity of SPV Pump as per CREDA's norms shall have to be conducted by SI/Contractor in presence of representatives of CREDA, if required.
- Joint Less PVC or Column Pipes should be used as suction pipe in the installation of surface pumps.

SPECIFICATIONS of Solar Pump

General Specifications of SPV Pumping Systems shall be in accordance with prevailing guidelines of MNRE, however the specifications of some components are also mentioned as follows –

1. SPV MODULES

1.1 Type and Quality

The total Solar PV array capacity shall be as specified in price schedule and shall be assembled with minimum 250 Wp (with minimum of 24 V) Multi/Mono Crystalline/MNRE approved solar modules with minimum 60 cells with minimum 15% Module Efficiency. The modules should be tested and certified by a Govt. of India authorized test centres or should conform to relevant IEC standard as per MNRE guidelines. Offered module shall have a power discharge warranty of 90% of the rated power for 10 years. The rated discharge power and Efficiency of any supplied module shall not be less than the specified power rating and Efficiency of the modules, in any case. Every module should have suitable by-pass diode at its terminal box. The SPV Modules must be installed in such a way so as to deliver proper voltage and current to ensure desired power discharge as per specifications of CREDA for the size of SPVPP ordered.

1.2 The modules used shall have following specifications:

Type : Mono crystalline/ Multi crystalline/
MNRE approved Solar Modules

Specification and standard : Confirming to Prevailing MNRE guidelines

1.3 The PV modules must conform to the latest edition of any of the following IEC/ equivalent BIS Standards for PV module design qualification and type approval:

Crystalline Silicon Terrestrial PV Modules: IEC 61215 / IS14286

1.4 IDENTIFICATION AND TRACEABILITY –

Each PV module must use a RF identification tag (RFID), which must contain the following information:

- (i) Name of the manufacturer of PV Module
- (ii) Name of the Manufacturer of Solar cells
- (iii) Month and year of the manufacture (separately for solar cell and module)
- (iv) Country of origin (separately for solar cells and module)
- (v) I-V curve for the module
- (vi) Peak Wattage, I_m , V_m and FF for the module
- (vii) Unique Serial No and Model No of the module
- (viii) Date and year of obtaining IEC PV module qualification certificate
- (ix) Name of the test lab issuing IEC certificate
- (x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.

The RFID must be inside of module lamination. The module laminate, but must be able to withstand harsh environmental conditions.

1.5 The panel should be supplied with CREDA Logo in the form of sticker on the back of SPV panel or duly laminated inside the glass of solar module with the remark "Manufactured for CREDA". Inter connections of solar modules should be through good quality male female joint. Name of manufacturer, S. No. of Module & manufacturing year should be clearly fixed inside the glass lamination of every module. Back label should be affixed behind every module which should clearly state the specifications & capacity of the module.

1.6 **The size of Module Frame and the thickness of Glass, Back Sheet and EVA Sheet must be of the maximum size with only positive tolerance of applicable IEC standards. Modules should be of indigenous make and the efficiency of SPV Modules must be above 15 %.**

The total capacity of the Solar Photovoltaic Array mentioned in the Rate Sheets is the minimum capacity in wattage of the total SPV modules to be installed in the SPV PUMPS

1.7 **PID Test** – SPV Modules must pass PID (Potential degradation) Test as per norms of MNRE.

Mechanical Components: MODULE MOUNTING STRUCTURE (MMS):

Solar pumps upto 05 hp/4800 cap. should be installed with Dual Axis MMS. Whereas Solar Pumps above 05 Hp/4800 watt capacities should be installed with Fixed MMS. The specifications of MODULE MOUNTING STRUCTURE (MMS) are as below:

MMS as per drawings should be installed along with the hot dipped galvanized (minimum 80 microns) array support structure for mounting of SPV modules at site. The panel frame structure should be capable of withstanding a minimum wind load of 150 Km per hour, after grouting and installation. MMS should be sturdy & designed to assist SPV Modules to render maximum discharge. The hardware (fasteners) used for installation of SPV Modules & MMS should be of suitable Stainless Steel (SS 304). Each MMS should be grouted on pedestals & Foundation as per drawings.

Module Mounting Structures should have theft proof arrangements with the use of GI Steel C-channel along with the array support structure for locking arrangement of SPV modules for protecting them from theft. Its size should be with reference to the specifications of the SPV modules such that modules can comfortably slide in the channel while installation. It should not hide any portion of the photovoltaic circuit encapsulated in the lamination of the SPV module, there by unaffected the efficiency & rating of the SPV modules. Anti Theft Nut Bolts of SS (with washers) should also be used for better theft proofing along with "C" Channel MMS.

3. **Surge Protection Mechanism:** Internal surge protection shall consist of three MOV type arrestors connected from +ve and -ve terminals to earth (via Y arrangement) for higher withstand of the continuous PV-DC voltage during earth fault condition. SPD shall have safe disconnection and short circuit interruption arrangements through integrated DC in built bypass fuse(parallel) which should get tripped during failure mode of MOV, extinguishing DC arc

safely in order to protect the installation against fire hazards. Nominal discharge current (I_n) at 8/20 micro seconds shall be minimum 10 KA with maximum discharge (I_{max}) at 8/20 micro seconds minimum 20 KA with visual indication (through mechanical flag) in modules to monitor the life of SPD.

4. **EARTHING PROTECTION:** Each array structure of the PV yard shall be grounded properly. In addition the lightening arrestor/masts shall also be provided inside the array field. Provision shall be kept for shorting and grounding of the PV array at the time of maintenance work. All metal casing/shielding of the plant shall be thoroughly grounded in accordance with Indian Electricity Act/IE rules as amended up to date. The earthing pit shall be made as per IS: 3043. All the array structures, equipments & control systems shall be compulsorily connected to the earth. Number of earthing shall vary with the capacity of SPV Power Plant & location. G.I. /Copper strips should be used for earthing instead of G.I. wires. LA should be installed to protect the array field & machines installed in the control rooms. Number of LA shall vary with the capacity of SPV Power Plant & location. The LA installations should be get approved from CREDA prior to installation.
5. **DANGER BOARDS:** Danger boards should be provided as and where necessary as per IE Act/IE Rules as amended up to date, as per the instructions of CREDA & affixed at various appropriate locations.
6. **CABLES/WIRE:** All cables should be of copper as per IS and should be of suitable grade as per requirement. All connections should be properly made through suitable lug/terminal crimped with use of suitable proper cable glands. The size of cables/wires should be designed considering the line losses, maximum load on line, keeping voltage drop within permissible limit and other related factors. The cable/wire should be of ISI/ISO mark for overhead distribution, with prior approval of CREDA.
7. **CONTROLLER :** Controller should be of the approved make and it should be in accordance with the electrical parameters of the Motor / Pump. Controllers should be fixed in suitable IP 54 Box with the provision of SPD as per norms of CREDA. Controller must have Remote Monitoring Arrangement as per MNRE & CREDA guidelines. System Integrators shall have to provide a link for monitoring of installed SPV Pumps.
8. **JUNCTION BOXES:** Junction Boxes (SJB / AJB / MJB) shall be mounted on poles of array support structure. The junction boxes should be made of FRP (Hensel or equivalent make (IP65), with prior approval of CREDA). It should be provided with proper locking arrangements.
9. Arrangement for cleaning of modules through a valve and flexible pipe from the inlet pipe of the tank at a suitable and safe point.
10. The same make of Solar Panels, pumps, inverter / controller shall be permitted for which the test report is submitted in the Tender document should be supplied by the Tenderder.
11. Flow Sleeve should be installed with the pump to avoid sand/ silt usually

dragged into the pump and motor and also to avoid impurities in case of horizontal installation in well or tanks.

12. Provision of System Monitoring and Problems Control facility should be incorporated in control panel to monitor operation of pump, power consumption and control dry running, over voltage, over load and over heating

Other details regarding specifications & performance of SPV Pumping Systems may be downloaded from MNRE website. In case of difference/ ambiguity of indicative specifications in MNRE and Specifications of CREDA, specifications laid down by CREDA shall be considered.

Scope Of Work – Water Distribution Network

- 1) All the work shall be executed as per the specifications laid down in standard specifications published by Public Works Department and as per the relevant provision of I.S. Code as applicable. In addition to above, item wise specifications given elsewhere with this tender document shall be applicable.
- 2) Pipe diameters mentioned in the item are outer diameter of UPVC Pipe. The designs of Main & Sub-Mains are carried out considering UPVC pipes of Class-3(6 kg/cm²) having following outer and inner diameters as per IS-4985:2000.

Specifications for UPVC Pipes of 06 Kg/ cm² as : IS-4985:2000

Sl. No.	Nominal Outside dia (In Mm)	Average Max. Thickness (In Mm)	Min. Thickness (In Mm)	Max. Thickness (In Mm)
1	75	3.1	2.6	3.1
2	90	3.7	3.1	3.7
3	110	4.3	3.7	4.3
4	125	5	4.3	5
5	140	5.5	4.8	5.5
6	160	6.3	5.4	6.2
7	180	7	6.1	7.1
8	200	7.7	6.8	7.9
9	225	8.6	7.6	8.8
10	250	9.6	8.5	9.8

- Contractor can use HDPE pipe in lieu of UPVC pipe at the approved unit rate or his quoted rate whichever is less and no additional payment or claim shall be eligible to the Contractor for the use of HDPE pipe in lieu of UPVC pipe.
- Contractor can use Tee/Reducer/Bend of HDPE in lieu of UPVC at the approved unit rate or his quoted rate whichever is less and no additional payment or claim shall be eligible to the Contractor for the use of HDPE Tee/Reducer/Bend in lieu of UPVC Tee/Reducer/Bend.
- Composite type of material is not allowed in one mains/submains.
- If Contractor opts for HDPE pipe in lieu of UPVC pipe then redesigning of mains/sub mains will be required. Redesigning shall be carried out before preparing estimate for mains/ sub mains.
 - The relevant specifications for different types of pipe material shall be followed in handling and laying of pipes. Manufacturing and factory testing and supplying at site of work of different diameters of different types pipes for different tests confirming to relevant I.S. or it's latest revision.

- The pipes manufactured at factory are to be carried to the site of work either directly or stacked suitably along the road or elsewhere near the site. Extreme care shall be taken while handling the pipes, damage during the transit and handling shall be at CONTRACTOR 's account and shall not be payable. Damage pipes shall be rejected outright. The discretion of the Engineer-in-charge in this behalf shall be final and binding on the CONTRACTOR .The payment of the entry tax, octroi tax and all other taxes shall be the responsibility of the CONTRACTOR
- Spigot & socket dimensions shall confirm I.S. 458-2003 amendments No.2 April-1991 or its latest revision.
- All pipes shall be thoroughly inspected before laying, damaged pipe, if any shall not be used & shall be removed from the site immediately.
- For lowering, laying and jointing of the pipe, the provision of relevant I.S. shall be strictly followed. Laying shall not be started till the bedding is approved by Engineer-in-charge or his subordinate.
- The pipes shall be laid on earth which shall be bedded evenly and firmly as far as up to the haunches of the pipe as to safely transmit the load expected from the back fill through the pipe to the bed. This shall be done either by excavating the bottom of the trenches to fit the curve of the pipe or by compacting the earth under round curve of the pipe to form an even bed. Necessary provision shall be made for joints wherever required.
- Pipe shall be lowered in trenches very carefully and if required it shall be lowered with mechanical appliances such as crane, chain pulley block with tripped arrangements, etc. only.
- The pipes shall be laid true to line and alignment with specified grades. Laying of pipes shall preferably proceed upgrade of slopes.
- The trenches shall be kept free of water till the jointing material is properly set.
- Whenever there are chances of rain water entering into trenches, care shall be taken to prevent pipe line from floating during the construction.
- Jacking for pipe line should be done properly as per the instruction of the Engineer-in-charge.
- Before jacks are removed the side should be filled with well rammed earth to prevent all chances of subsequent movement where more pipes are jacked later on.
- If the laid pipe goes in zigzag in position due to excess of jacking the pipes have to be removed and re-laid by the CONTRACTOR with no extra cost.

- The CONTRACTOR shall remove all the silt and debris if found in the pipe line.
- The CONTRACTOR shall have to make good any leakage at his cost and satisfactory test shall have to be given after the same. The pipe line once laid and jointed but damaged subsequently during the monsoon or due to any other reasons shall have to be rectified by the CONTRACTOR at his cost. The testing of the laid pipe
- line should be in accordance with relevant I.S. or it's Latest version and amendments thereto.
- After pipe laying is completed and inspected thoroughly and tested, the pipe trenches shall be filled with excavated stuff only. The work of back filling of trenches to its natural ground is covered under the item of excavation. No separate payment will be made for back filling. The back filling of excavated stuff shall include back filling trenches in layers not exceeding 15 cm with watering and compacting the fill with suitable compacting devices as directed by the Engineer-in-charge.
- Due care shall be taken to protect existing structures, sewer line, telephone / electricity cables, electric line, gas pipe line, irrigation pipe line etc. In the event of damage to these utility service structures/ cables/pipe lines during the course of execution shall have to be repaired / remedied by the CONTRACTOR at his own cost & risk.
- At any public highways, road crossings or at such other crossings, the water carrying pipes shall be laid in the RCC NP3 class casing pipes. The casing pipe shall be of appropriate diameter suggested by the Engineer –In-charge which may be about 100 mm or more larger than the carrier pipe.

DESCRIPTION OF ITEM

- ✓ Providing and supplying in standard length ISI mark rigid un-plasticized PVC pipes suitable for potable water with ringfit, joint including cost of rings as per IS specification No. 4985/2000 including all local and central taxes. Transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the site of work and including cost of jointing materials etc complete.)

(Test Pressure 06 kg/cm²)

i	75 mm dia. (UPVC)	vi	160 mm dia. (UPVC)
ii	90 mm dia. (UPVC)	vii	180 mm dia. (UPVC)
iii	110 mm dia. (UPVC)	viii	200 mm dia. (UPVC)
iv	125 mm dia. (UPVC)	ix	225 mm dia. (UPVC)
v	140 mm dia. (UPVC)	x	250 mm dia. (UPVC)

- ✓ Lowering, laying, jointing and testing un-plasticized PVC pipes & specials of following class and diameter including labour, hydraulic testing etc. complete but excluding cost of cement solvent

(Test Pressure 06 kg/cm²)

i	75 mm dia. (UPVC)	vi	160 mm dia. (UPVC)
ii	90 mm dia. (UPVC)	vii	180 mm dia. (UPVC)
iii	110 mm dia. (UPVC)	viii	200 mm dia. (UPVC)
iv	125 mm dia. (UPVC)	ix	225 mm dia. (UPVC)
v	140 mm dia. (UPVC)	x	250 mm dia. (UPVC)

- ✓ **Providing and supplying at site of work including freight, loading, unloading, stacking, insurance and all taxes etc complete.**

I) Made from I.S.I. approved UPVC material (Test Pressure 6 kg/cm²)

A) Tee (Preferably Moulded)

i	Size (75X75 mm)	vi	Size (160X160 mm)
ii	Size (90X90 mm)	vii	Size (180X180 mm)
iii	Size (110X110 mm)	viii	Size (200X200 mm)
iv	Size (125X125 mm)	ix	Size (225X225 mm)
v	Size (140X140 mm)	x	Size (250X250 mm)

B) Elbow (Preferably Moulded)

(i) size (75 x 75 mm)	(vi) size (160 x 160 mm)
(ii) size (90 x 90 mm)	(vii) size (180 x 180 mm)
(iii) size (110 x 110 mm)	(viii) size (200 x 200 mm)
(iv) size (125 x 125 mm)	(ix) size (225 x 225 mm)
(v) size (140 x 140 mm)	(x) size (250 x 250 mm)

Reducer (Moulded/ Fabricated), Tee, UPVC Band & Other Items shall be installed in accordance to the requirement.

Excavation of trenches, Back-filling the excavated stuff and watering & compacting the back-filled stuff where casing pipes are to be laid by open cut method.

The excavation of trenches for laying pipes will include following activities:-

1. Clearing site
2. Setting out works, profiles etc, according to sanctioned plan for as ordered and setting up Bench marks as other reference mark.
3. Providing and subsequently removing, shoring and strutting or cutting slopes except when, separately provided for in the tender.
4. Bailing and pumping out water when separate provision does not exist for it in the tender.
5. Excavation and removal of all materials of whatever nature wet or dry and necessary for the construction of foundation including materials like explosives, removal of blows and slips and use of tools, plant and equipment necessary for satisfactory completion of the item and preparing bed for foundation.
6. Sorting out of useful excavated materials, conveying them up to the specified lead clear beyond the structure and stacking them neatly for backfilling or reuse and wasting useless materials as directed by the Engineer.

7. Backfilling the trenches alongside masonry or concrete with approved material ground risk or accident.
8. Necessary protection including labour, materials and equipment to ensure safety and protection against risk or accident.
9. Supply of facilities for inspection and measurement at any time by the concerned Government office.

Compensation for injury to life, and damage to property if any caused by the CONTRACTOR 's operations connected with this item.

CLEARING SITE:

The site on which the pipe is to be laid shown on the plan and area required for setting out and other operation should be cleared and all obstructions, loose stones, materials and rubbish of all kind, stumps, brush wood and trees removed as directed, roots being entirely grubbed up. The material obtained will be property of Government and materials pronounced useful by the Engineer will be conveyed and property stacked as directed within the specified lead. Useless materials will be burnt or otherwise disposed of as directed by the Engineer.

SETTING OUT:

After clearing the site, the center lines will be given by the Engineer and it will be responsibility of the CONTRACTOR to install substantial reference marks, bench marks, etc. and maintain them as long as required true to line, curve, level and slopes. The CONTRACTOR will assume full responsibility for alignment, elevation and dimension of each and all parts of the work, labour, materials, etc. required for setting out and establishing bench marks and other reference marks shall be arranged by the CONTRACTOR at his own cost.

EXCAVATION:

Excavation for pipe line trenches shall include removal of all materials of whatever nature and whether wet or dry, necessary for laying pipes to the required level & shall be exactly in accordance with the lines, levels, grades, and curves shown on the plans or as directed by the Engineer. It shall be taken to the exact width as per diameter of pipes to be laid and the sides shall be plumb where the nature of soil admits it. CONTRACTOR shall at his own cost do the necessary shoring or cutting of slopes to safe angle or both as approved by the Engineer when the strata need such treatment. The CONTRACTOR shall notify the Engineer – In - Charge after achieving the foundation level to allow permission for laying of pipes.

SHORING:

Unless separately provided for the contract, excavation of slopes to prevent falling in sides or providing, fixing maintaining and removing, shoring, bracing, etc. shall not be paid for. The CONTRACTOR would be responsible for the design of shoring for the excavation to be properly upheld. Shoring shall be of sufficient strength to resist side pressure and ensure safety from slopes, blows and to prevent damage to work and property and injury to persons. It shall be removed as directed after all the items for which it is required are completed.

PROTECTION:

Near towns and all frequented places foundation pits, well pits and similar excavation shall be strongly fenced and marked with lights at night in charge or watchman to avoid accidents, Adequate protective measures shall be taken

to see that the foundation excavation does not affect or damage adjoining structures. All measures required for the safety of the excavation the people working in and near the foundation trenches, property and the people in the vicinity shall be taken by the CONTRACTOR at his own cost. He being entirely responsible for any injury to life and damage to property caused by his negligence or accident due to his constructional operations.

DISPOSAL OF EXCAVATED MATERIALS:

No materials excavated from foundation trenches of whatever kind they may be are to be placed even temporarily nearer than 1.5m or greater distance prescribed by CREDA from the outer edge of excavation. All materials excavated will remain the property of Government. Rate of excavation includes sorting out of useful materials and stacking them separately as directed. Materials suitable and useful for backfilling or other use shall be stacked in convenient places but not in such a way as to obstruct free movement of men, animals and vehicles or encroach on the area required for constructional purpose. It shall be used to the extent required to completely backfill the structure to original ground level or elevation shown on the plans or as directed by the Engineer. For backfilling the materials shall be placed in 15 cm. (6" approx) to 20 cm (8"approx.) layers, moistened and well compacted. Materials not useful in any way shall be wasted as directed by CREDA. If useful excavated rubble is required by the CONTRACTOR for use in other times, it shall be paid for at the fixed in the tender and if not so provided, at the rate in the Divisional schedule current at the time of tendering or at mutually agreed rate if there is no rate in the Divisional schedule. The site shall be left clean of all debris on completion.

DEWATERING:

The excavation rate shall include bailing or pumping out all water which may accumulate in the excavation during the progress of the work either from seepage, springs, rain or any other cause and diverting surface flow if any, by bunds or other means. The bunds shall be removed after their purpose is served.

Pumping out water from any foundation enclosure or trenches shall be generally in such a manner as to preclude possibility of any damage to the foundation trenches, concrete or masonry or any adjacent structure. The excavation shall be kept free from water (1) during inspection and measurement. (2) When concrete and/or masonry are in progress and till they come above the natural water level and (3) till the Engineer considered that the mortar is sufficient set.

SLIPS AND BLOWS:

If there are any slips or blows in the excavation they shall be removed by the CONTRACTOR without cost to the department so as to provide the correct dimensions required for the foundation.

BACK FILLING OF PIPE LINE TRENCHES:

The item also includes backfill of pipeline trenches with excavated stuff to its natural ground level after pipe laying is completed. All fill materials shall be laid in continuous level, layer not exceeding 15 cm. and shall be well compacted. No separate payment shall be made for back filling of pipe line trenches.

Testing of pipes

- (a) The pipes to be used shall be tested before procurement. The CONTRACTOR shall have to make necessary arrangement for testing of pipes of each class and each diameter at the factory of the manufacturer/Vendor. The test required to be carried shall be as per I.S. No pipes without testing shall be allowed to use in work.

(b) Inspection

In addition to the progressive supervision and inspection by the Engineer in charge or his representative, the Contractor shall offer for inspection to Engineer in Charge or his representative, the complete, erected or its Parts.

Masonry walls in 1:5

Masonry wall in 1:5 proportion of appropriate dimensions as per the requirement of the site situation shall have to be constructed at both the ends of the casing pipes to serve as plugs to prevent entry of soil / debris in the casing pipe. The walls shall have to be plastered in 1:3 proportion in appropriate dimension as directed by the Engineer-In Charge. No extra payment shall be made for this activity.

MONSOON DAMAGES

Damages due to rain or flood to UGPL and / or in foundation of structure shall have to be made good by the CONTRACTOR till the work is finally handed over to the CREDA.

The responsibility of de-silting and making good the damages due to rain or flood rests with the CONTRACTOR , throughout the defect liability period of work and not only limited to earthwork. No extra cost is payable for such operations to protect the work done during the construction and the CONTRACTOR shall therefore have to take all necessary precautions to protect the work done during the construction period. The provision made in this Para shall be applicable to all the components of the work under this contract up to defect liability period of the entire work. The CONTRACTOR shall take all precautionary measures well prior to onset of monsoon to prevent entry of flood water in UGPL and structures on it from drains, nallas, river and other area. However any damage done to the work or silting or slush caused shall have to be attended by the CONTRACTOR without any extra cost to CREDA and no time limit sanction shall be enter for the work. During monsoon the Contractor shall make available the machinery such as pumps, excavators, dozers, rollers etc. and skilled and unskilled manpower to attend the emergency conditions of flood inundation. The cost for such operations, shall not be paid separately and deemed to be included in the rates quoted in respective Items of Schedule-B. The Contractor shall take all necessary precautions to prevent the entry of rain / flood water during monsoon in the pipe line and structures on it.

UPVC (un-plasticized polyvinyl chloride) PIPE LINE

Scope of Work

The specification covers the work of providing and laying all diameter **UPVC** Pipe line including testing etc.

General Specifications and requirements:

(1) Raw material

Raw material used to manufacture **UPVC** Pipes shall be virgin compound (polyvinyl chloride resin) conforming to IS:4985-2000 and its testing shall conform to IS:4669-1968. The bulk density of the **UPVC** compound shall be 0.50 to 0.53. The density of UPVC pipe shall be 1.40 to 1.46 g / cm³.

(2) Temperature variation:

All the pipes to be manufactured, supplied and erected shall be resistant to whether conditions like sun, dust, rain, wind etc as per the environmental conditions under the project area. They shall also be subject to carry and convey raw water under variable temperature conditions ranging from 4 to 45 deg. Centigrade.

(3) Marking

Each pipe shall be indelibly marked in English language at an interval of 1m by heat embossing. The marking shall show the following.

1. Manufactures name or trade mark.
2. Grade of raw material
3. Class of pipe & pressure rating.
4. Outside diameter
5. Lot/batch No. of manufacturer.
6. ISI certification mark.
7. Name of Department / Project under which work is to be executed: "CREDA"
8. Any other important matter that the manufacturer or purchaser deems fit to be inscribed.

(4) Material and workmanship

- (a) General requirements of material and workmanship shall mean any material or article either raw material or additives or finished are required to be used in the manufacturing process of pipes.
- (b) The material used for manufacturing of pipes should not constitute any toxic hazards, should not support micro biological growth and should not give rise to unpleasant test or odour, discolorations of water. The Contractor shall have to produce a certificate fulfilling these effects from the pipe manufacturer. Pipe manufacturer shall obtain certificate to this effect from the manufacturer of raw material. Also a certification from raw material manufacturer that the raw material meets the poly vinyl chloride confirming to ISO 4435-1991 &, IS:4985-2000 and its latest revision amendments.
- (c) The material from which the pipes are made shall consists substantially of poly vinyl Chloride confirming to IS :10151-1982 to which may be added only those additives that are absolutely needed to facilitate the manufacture of the polymer and the production of sound durable pipe of good surface finish, mechanical strength and opacity. All other quality parameters like density, MFR, Carbon black contents and anti oxidant used for manufacturing of pipes shall be strictly as per IS :12235-2004 and it's latest revision/ amendments.

Technical Specification

Manufacture of UPVC pipes.

The General requirement relating to the manufacture of UPVC pipes shall be confirming to IS: 4985 - 2000 and it's latest revision /amendments.

- (a) The dimension, material composition, tests etc shall be as per IS:12235 – 2004 and its latest revision/ amendments.
- (b) UPVC pipes shall be marked with ISI certification mark.
- (c) The pipe dimensions and tolerances shall be as per latest revisions and amendments of IS 12235 -2004.(Part1)& IS 4985-2000

Tests

The following tests as per IS: 12235-2004 and it's latest revision/amendments will be carried out by the agency .

- a. Dimensions (Inside and outside diameter, Wall thickness and Length of pipe) as per Clause No. 7.0 of IS:4985-2000
- b. Visual appearance as per Clause No. 10.1 of IS:4985-2000
- c. Hydraulic Characteristics as per Clause No. 11.1 of IS:4985-2000
- d. Reversion test as per Clause No. 10.4 of IS:4985-2000
- e. Density test as per Clause No. 10.6 of IS:4985-2000
- f. Sulphate Ash Content 11% Max. as per Clause no. 10.7 of IS : 4985-2000
- g. Internal hydrostatic pressure in accordance with IS: 12235-2004 (part-8), pipe shall not burst during the prescribed test duration.
- h. The PVC pipe shall not contain vinyl chloride monomer (VCM) exceeding 1 ppm when determined by means of gas phase chromatography using the “headspace” method according to IS: 10151-1982.
- i. The wall of the wall of the plain pipe shall not transmit more than 0.2% of visible light falling on them when tested in accordance with IS:12235-2004 (part -3).

Sampling and Criteria for Conformity

The sampling procedure and the criteria for conformity shall be as per Annex D of IS :4985 – 2000.

The scale of sampling for visual and dimensional requirement shall be as per Table No.13 of IS:4985 – 2000 or as directed by Engineer – In – Charge. The sampling shall be made on random basis, from a lot manufactured. The samples required for testing shall be taken as directed by Engineer – In – Charge or his representative.

When subjected to internal hydrostatic pressure test in accordance with the procedure given in IS:12235-2004 (Part 8) the pipe shall not fail during the prescribed test

duration. The temperatures and duration of test shall conform to the requirements given in the table mentioned below. The tests shall be carried out not earlier than 24 h after the pipes have been manufactured.

Requirements of Pipes for Internal Hydrostatic Pressure Test			
Test (1)	Test Temp. (Min.) ⁰ C (2)	Test Duration (Min. holding time) (h) (3)	Test Pressure (Min.) MPa (4)
Quality Test	60	1000	1.16xPN(MPa)
Acceptance	27	1	4.19xPN(MPa)

The pipes under test shall show no signs of localized swelling, seepage cracking, leakage or weeping and shall not burst during the prescribed test period.

During execution if required the sampling of pipes shall be made from the procured, tested and delivered lot of pipes at site randomly. The same shall be tested for the tests mentioned in above Para the CONTRACTOR shall have to borne all the cost of testing in such a case over and above the cost of regular testing.

2 Type Test

The type test shall be carried out as per IS:12235 - 2004 and its latest revision/ amendments. The type tests are intended to prove the suitability and performance of anew composition, a new technique or a new size of a pipe. Such tests, therefore, need be applied only when a change is made in Polymer composition or method of manufacture, or when a new size of pipe is to be introduced. Engineer-In-Charge or his representative may call for the fresh samples for the type tests if required.

Laying of Pipes.

Underground Installation of UPVC Pipe:

Generally, the width of the trench should be minimum dimension compatible with safe working and the satisfactory laying, jointing and bedding of pipe as per drawing or as directed by Engineer – In – Charge. The depth of the trench shall atleast be 03 feet from ground level plus diameter of pipe or as directed by Engineer – In – Charge. As excavation proceeds, all unstable trench walls need to be supported as per requirement is mandatory for trenches of 03 feet or deeper. The cost for this is incorporated in the relevant item of excavation of pipe line and no extra payment shall be made / entertained for this activity. Bed of the trench shall be well dressed and shall be free from clods. If any stones or other objectionable solid material met with during excavation of trench at bottom, it should be removed and if required the bed should be leveled with selected soil available from the excavation of the trench.

Preparation for pipe laying.

Pipes shall be joined to form a single long length above ground prior to staking into the trench as per site situation or as directed by Engineer – In – Charge. To prevent scratches on surface of pipe / damage to pipe of the road surface, pipe rollers should be used.

Before commencing of pipe laying into the trench a check should be made for deep cuts, scratches or other damages in the pipe and the fusion joint system is sufficiently cooled.

Pipe Laying

The pipes shall be laid in proper line and level as per drawing or as directed by Engineer – In – Charge. Gradual changes in direction of polyethylene can be accommodated by pipe deflection but every effort should be made to keep the pipe as central as possible within the trench to enable correct side fill compaction. Similar care should be taken when any distortion of the coiled pipe has occurred.

Jointing of pipes:

(1) Preparing Joints.

The pipes shall be jointed by flush joint as instructed by the Engineer-In-Charge. Caulking space shall be as per relevant IS code according to the diameter of the pipes. The next pipe shall then to be pressed against the first so that the recess between the end of first pipe and that of the second properly fills with Synthetic ring and both pipe shall pressed against each other properly. The joints shall be smooth finished. The CONTRACTOR shall have to make sufficient room for making the joints leak proof at the bottom of joint by excavating the earth as per requirement. But due care shall be required during the backfilling in that portion. No extra payment shall be made for making sufficient room for the jointing of pipes at bottom of joint.

Connections through walls of wells/water Sources:

Pipe may have to go through masonry walls of wells/water Sources. In such a case, the pipe should have a puddle flange welded (if required) around the pipe to ensure a leak proof joint between the pipe and the masonry well wall.

TESTING OF PIPE LINE

Inspection and test after erection

In addition to the progressive supervision and inspection by the Engineer in charge or his representative, the CONTRACTOR shall offer for inspection to Engineer-in-Charge or his representative, the complete erected or its parts on which tests are to be carried out.

After such inspection by Engineer-in-charge or his representative, the CONTRACTOR shall have to carry out the testing for leakage/seepage from pipe line /structures in the presence of Engineer – In – Charge or his representative. All the structures shall be observed, checked and tested for leakage and constructional defects.

Testing

- (1)** The length of pipeline to be tested shall be the length between well to well or as directed by Engineer – In – Charge. Generally for sub-minor the testing shall be carried out for full length at a time, if length of sub-minor is less than 1.0 km and for more length of sub-minor the testing shall be carried out in two stages as directed / decided by Engineer – In – Charge. The CONTRACTOR shall have to make all the arrangement of water for testing, labours, supervisory staff, etc. for the period of testing. The necessary arrangement for plugging of opening in the wells/water Sources (end well of reach under testing) shall be made by the CONTRACTOR at his cost. After testing CONTRACTOR shall have to remove the plugging at his cost, but care should be taken that no damage will occur to the work executed. If any damage will occur to any parts of work executed the

same shall be required to be repaired by the CONTRACTOR at his cost to the satisfaction of Engineer – In – Charge.

- (2) Backfilling of pipeline trenches can be done before the testing of pipe line.
- (a) **Initial Filling:** The water shall be filled in the portion under testing upto predetermined level and shall be continuously maintained at predetermined level at predetermined locations(wells/water Sources) for 48 hours. The purpose of initial filling shall be to provide sufficient time/water for absorption in the masonry structures (wells/water Sources).

(b) **Observation/Checking/Testing for Leakage:**

The level of water surface shall be measured after 48 hours of initial filling and thereafter at an interval of 24 hours for at-least 5(Five) days. During the testing the joints of pipe line shall be observed and checked, if any leakage found, the pipe shall be emptied out by the CONTRACTOR at his cost and shall be rectified at his cost. The testing procedure shall be repeated, till the rectification of the damages/defects/leakages are of the acceptable engineering standard.

During the testing after initial filling the level of water surface in the wells/water Sources under consideration shall be measured.

Work of UGPL mains/sub-mains shall be inspected by CREDA officials/third party and payments shall be done after getting approval of CREDA Officials. Modalities of Third Party Inspection shall be separately decided and given by CREDA.

Back filling of Trenches.

- (a) Trenches shall be kept free from water until the material in the joints has hardened. Walking or working on the completed pipe shall not be permitted until the trenches have been backfilled so as to arrive at the original ground level after sufficiently compacting each layer of uniform thickness of 15 cm to 23 cm.
- (b) Trenches shall be backfilled after pipe has been laid subject to the condition that jointing material has hardened. Only selected material shall be used for back filling. Filling of trenches shall be carried out simultaneously on both sides of pipe in such a manner that unequal pressure does not occur.
- (c) After backfilling and during the defect liability period if any settlement will be observed in backfilling on alignment of pipe the same shall have to be attended by the CONTRACTOR at his cost.

Rejection of the system or system components

If any leakage found during testing of pipe line, CONTRACTOR will have to attend immediately and rectify at his cost within 5 (Five) days. If CONTRACTOR fails to rectify the defect the entire length of pipe line between two adjacent wells/water Sources shall be rejected and not accepted. The payment shall not be made for the rejected work. The difference in water level during testing shall be within the tolerance limit as specified above, otherwise the work shall not be accepted and paid. If any intermediate payment made to the CONTRACTOR for

portion under rejection, the same shall be recovered from the outstanding dues of the CONTRACTOR

MONSOON DAMAGES

Damages due to rain or flood to UGPL and / or in foundation of structure shall have to be made good by the CONTRACTOR till the work is finally handed over to the Concerned Gram Panchayat in presence of CREDA Officials. The responsibility of de-silting and making good the damages due to rain or flood rests with the CONTRACTOR, throughout the defect liability period of work and not only limited to earthwork. No extra cost is payable for such operations to protect the work done during the construction and the CONTRACTOR shall therefore have to take all necessary precautions to protect the work done during the construction period. The provision made in this Para shall be applicable to all the components of the work under this contract up to defect liability period of the entire work. The CONTRACTOR shall take all precautionary measures well prior to on set of monsoon to prevent entry of flood water in UGPL and structures on it from drains, nallas, river and other area. However any damage done to the work or silting or slush caused shall have to be attended by the CONTRACTOR without any extra cost to CREDA and no time limit sanction shall be enter for the work.

During monsoon the CONTRACTOR shall make available the machinery such as pumps, excavators, dozers, rollers etc. and skilled and unskilled manpower to attend the emergency conditions of flood inundation.

The cost for such operations shall not be paid separately. The CONTRACTOR shall take all necessary precautions to prevent the entry of rain/flood water during monsoon in the pipe line and structures on it.

Other considerations :

- The contractor shall be responsible to provide all facilities for water distribution to all concerned beneficiaries (whether the provision is mentioned or not in terms & condition of tender).
- Before starting the work, contractor / Tenderder shall be responsible to make an action plan with inspection of site, measurements and verification of all aspects of work.
- To prevent from any possibilities of accident during the work the contractor / Tenderder shall be responsible for cleaning the surface of work area regularly, if any kind of accident occur during the work the contractor / Tenderder shall be responsible for the same.

Technical Specifications for Water Distribution Network

1. The Contractor shall be responsible for supply & laying work of pipe/Pipe lines with all required specials and other materials such as :
 - Shut off Valves – Up to 2 inch ball valves, above 2 inch butterfly valves of reputed make-
 - Non Return Valves of reputed make-
 - Strainers – “Y type” or “Pot type” of reputed make-
 - Automatic air & vacuum vent valves of reputed make-
 - Glycerine Filled Pressure Gauges of reputed make-
 - Pressure Relief Valve of reputed make-
 - Globe Valve of reputed make-
2. Each Pump assembly shall have Shut off valve, strainer and pressure gauge before suction and NRV and shut off valve & pressure gauge at discharge.
3. Automatic air and vacuum vent valve shall be install at regular interval based on the site condition.
4. The Contractor /Tenderder shall be responsible to meet all necessities which are required for proper distribution of pipe lines as :
 - 4.1 Payments & required materials for trenching work.
 - 4.2 The trench depth shall be at least 03 feet (900 mm) and the width shall be at least three times the pipe dia.
 - 4.3 As per the soil texture the back filling of the trench shall be with adequate quantity of sand.
 - 4.4 Proper combination of all parts of pipe lines with back-flow prevention.
5. Pipe materials shall be made as per UPVC (For underground Pipe Line Work) /HDPE (For Over ground Pipe Works) standard & it shall be Rat proof also. Fitting works shall be done as per BIS/ISI norms & specifications.
6. **Leak Testing**

If a leak test is required, it should be conducted in accordance with the procedure after the embedment material is placed.
7. **Trench Backfill**

The final backfill may consist of the excavated material, provided it is free from unsuitable matter such as large lumps of clay, organic material, boulders or stones larger than 8 inches, or construction debris. Where the pipe is located beneath a road, place the final backfill in lifts as mentioned earlier and compact to 95 percent Standard Proctor Density

SCOPE OF WORK - CIVIL WORKS

1. CREDA will provide the specific drawing & design at site for all allied works as platform/ intake well/buffer well for solar pumps, control room etc.
2. Before starting work the SI/ Contractor shall be required to submit the detail drawing of structures, after approval from CREDA the SI/contractor could be able to start the work at site.
3. Layout of the work will be done by the Contractor in consultation with the Executive Engineer of the Department or his representative, some permanent marks should however be established to indicate the demarcation of the structure or any component thereof made to this permanent marks in measurement books and drawing signed by the contractor and the departmental officer, Responsibility regarding layout will be joint.
4. Eligible contractor shall have to execute all works on site as CREDA's drawing, design & specifications.
5. The material required only for this work shall be kept in the godown at site. No material shall be shifted outside of the godown site except for the work for which this agreement is entered, without prior approval of the Engineer-in-charge.
6. The materials i.e. cement, T.M.T. steel bars, concrete, sand, etc. brought on the work site shall be accompanied with necessary Company / Manufacturing firm's test certificates. In addition these materials shall be tested as per frequency prescribed by the department and the cost of such testing shall be borne by the contractor. If the test results are satisfactory, then and then only the material shall be allowed to be used on the work. If the test results are not as per standards prescribed, these materials shall be immediately removed from the work site at contractor's cost. In case of cement, if so requested by the contractor in writing, material shall be allowed to be used before receipt of test results but this will be entirely at the risk and cost of the contractor.
7. The contractor shall produce sufficient documentary evidence i.e. bill for the purchase, Octroi receipts etc., bill for the purchase of materials brought on the work site at once if so requested by the Department.
8. All the materials such as cement, T.M.T. steel bars, concrete, sand, etc. required for execution of work shall be brought by the contractor at his own cost.
9. The contractor shall maintain the record with photographs of all consumed works as well as materials like excavation works done for various works, use of cement, concrete, aggregate, sand, mureem, steel etc.

The Contractor shall submit periodically as well as on completion of work, an account of all materials used by him on the work. In addition, a separate register shall be maintained on site for recording daily item wise cement, T.M.T. steel bars, concrete, sand, etc. consumption and also item wise

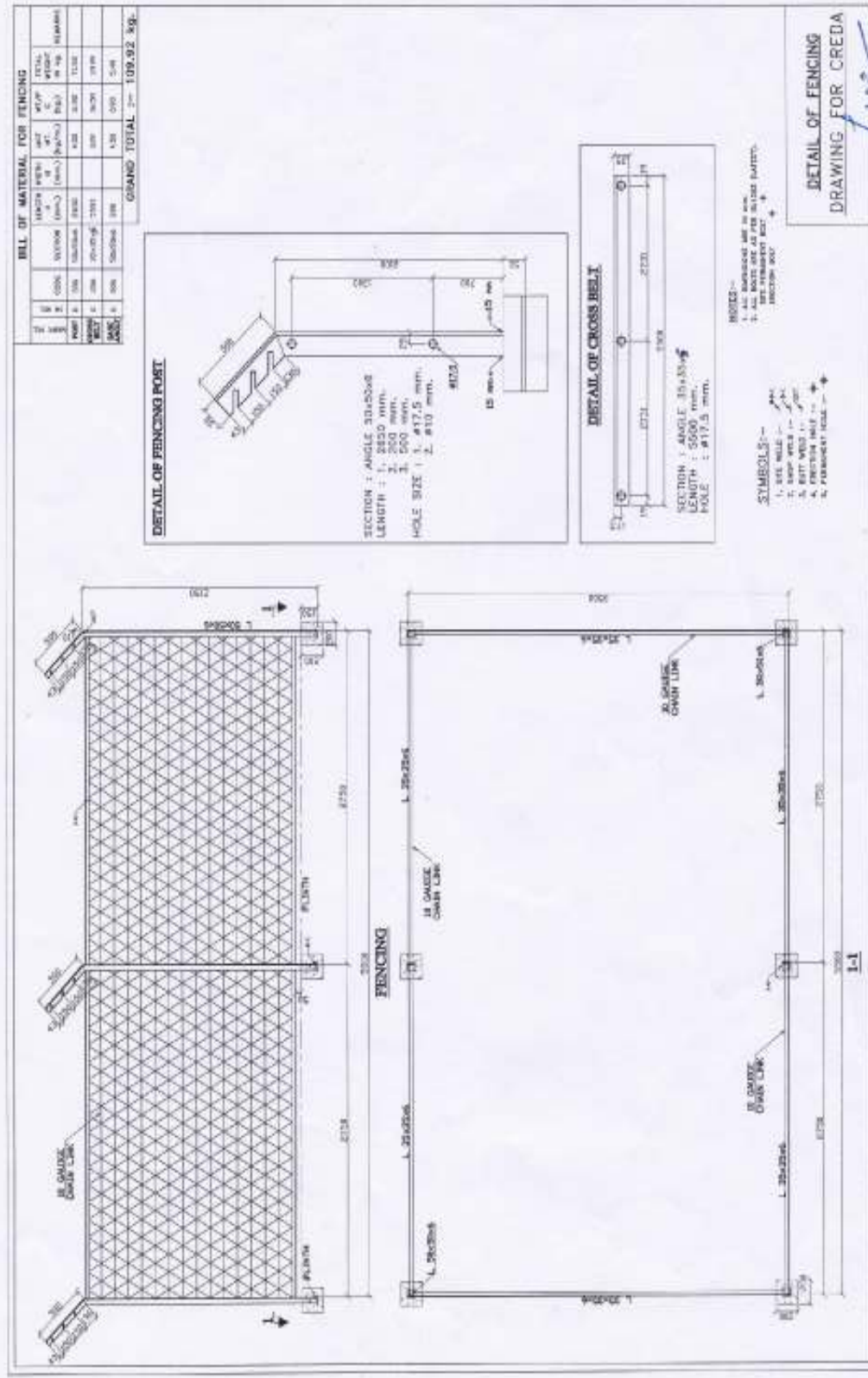
consumption of other materials. This shall be signed daily by Contractor or his representative and representative of Engineer-in-charge.

10. All photographs which are being maintained for keeping records of various works should be clearly visible and justified with measurement equipment as measuring tape, spirit level, plumb etc.
11. Proper curing of all allied civil works shall be done by the contractor, in case of properly non-cured civil works contractor shall be directly responsible for the same, and thus re-construction of that particular non-cured part/work shall be required which should be done by the contractor at his own cost.
12. Cube/slump test shall be required for each construction work.

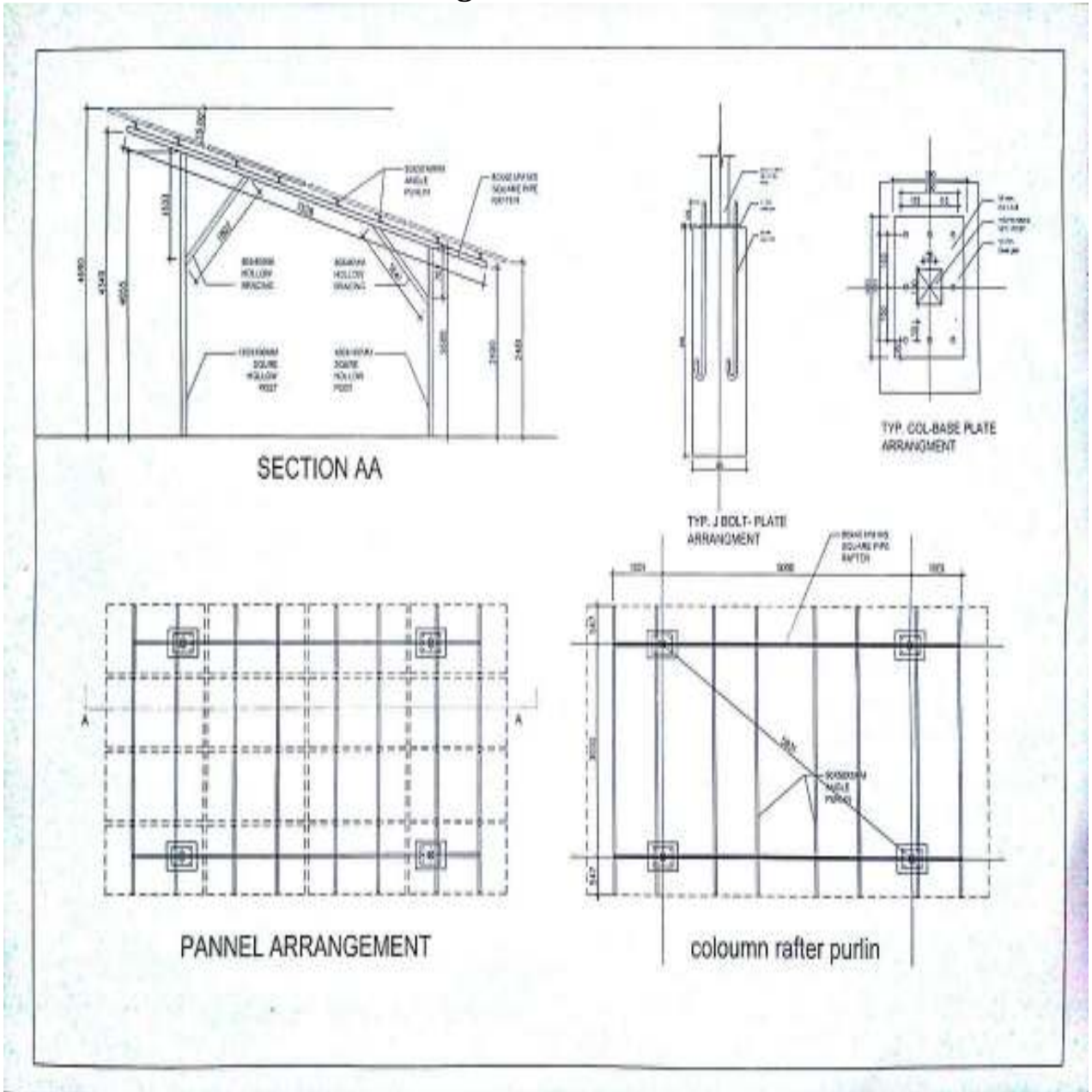
Specification for Chain Link Fencing :

Fabrication supply and installation of fencing of 10 gauge chain link wire mesh of 75X75 mm opening, fitted with 50X50X6 mm vertical M.S. Angle at spacing of 2.5 mtr & 35X35X5 mm horizontal M.S. Support. Every set of fencing will have one M.S. Angle framed gate with same chain link wire mash with locking arrangement and two extra posts. Three lane barbed bolts, washer and nut as per enclosed design drawing and specification with two coat steel primer zinc chromate and one coat silver/aluminium paint of standard brand with installation and fitting of fencing with grouting the poles in 1:2:4 P.C.C. of size 0.45X0.45X0.60 mtr. for given requirement with complete civil material.

Drawing of Fencing



Drawing Of Fixed MMS



Bill Of Material for Fixed MMS

BILL OF MATERIAL								
MARK NO.	IN ON E	Code	SECTION	LENGTH (MM)	WIDTH (MM)	UNIT WT. (KG/M)	WT/PC (KG)	TOTAL WT. (KG)
BASE PLATE	4	P10	PL-10MM.THK.	300	400	78.50	9.42	37.68
TOP PLATE FOR LEG	4	P6	PL-6MM.THK.	200	150	47.10	1.41	5.65
LONG LEG	2	100X100	100x100x5 squire bar	4055		15.26	61.90	123.79
SHORT LEG	2	100X100	100x100x5 squire bar	2715		15.26	41.44	82.88
PURLIN CLIT	8	506	50x50x6	80		4.50	0.36	2.88
PULIN	8	506	50x50x6	4200		4.50	18.90	151.20
RAFTER BASE PLATE	4	P6	PL-6MM.THK.	200	150	47.10	1.41	5.65
RAFTER	2	80X80 PIPE	80x80X3 PIPE	7529		7.48	56.32	112.63
BRACING 1	1	80x80 PIPE	80x80X3 PIPE	1802		7.48	13.48	13.48
STIFFNER	8	P6	PL-6MM.THK.	75	75	47.10	0.27	2.12
BRACING 2	1	80x80 PIPE	80x80X3 PIPE	1641		7.48	12.28	12.28
TOTAL WEIGHT (KG)								550.25

Base Rates of CREDA for Solar Community Irrigation Projects

A Civil Works			
Code	Description	Unit	Rate
1	EARTH WORK		
1.1	Excavation for all types and sizes of foundations, trenches and drains or for any other purpose including disposal of excavated stuff upto 1.5 m lift and lead upto 50m (at least 5m away from the excavated area), including dressing and leveling of pits.		
1.1.1	In all types of soils.	cum	185.00
1.1.2	In ordinary rocks.	cum	267.00
1.1.3	In hard rocks requiring blasting.	cum	453.00
1.1.4	In hard rocks where blasting in prohibited.	cum	798.00
1.2	Surface dressing of the ground including removing vegetation and making up undulations and in-equalities not exceeding 15 cms in depth/ height including disposal of rubbish upto 1.5 m lift and lead upto 50m (at least 5m away from the dressed area).	sqm	7.20
1.3	Felling trees of the girth (measured at a height of 1 m above ground level) including cutting of trunks and branches removing the roots and stacking of serviceable material after cutting in approved sizes and disposal of unserviceable material.		
1.3.1	Beyond 30 cm girth upto and including 60 cm girth	each	132.00
1.3.2	Beyond 60 cm girth upto and including 120 cm girth	each	582.00
1.3.3	Beyond 120 cm girth upto and including 240 cm girth	each	2,721.00
1.3.4	Above 240 cm girth	each	5,486.00
1.4	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth upto 30 cm measured at a height of 1 m above ground level and removal of rubbish upto a distance of 50 m outside the periphery of the area cleared.	sqm	3.70
1.5	Clearing grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared.	sqm	1.90
1.6	Extra for every additional lift of 1.5 m or part thereof.		
1.6.1	All types of soils	cum	26.50
1.6.2	Ordinary or hard rocks	cum	47.50
1.7	Extra rate for quantity of work executed in or under water and/ or liquid mud including pumping out water.	cum	51.00
1.8	Extra rate for quantity of work executed in or under foul condition.	cum	44.00
1.9	Extra rate for lead for every 50m lead or part thereof and upto 150 m beyond 50 m free lead and 1.5 m free lift by manual means only.		
1.9.1	For Soils	cum	33.00
1.9.2	For Rocks.	cum	49.50
1.10	Pumping out water caused by springs tidal or river seepage, broken water main or drains and like during Excavation or during Excavation and laying of base concrete (volume to be calculated taking height from water level to bottom of pit and to be measured and paid) .	cum	146.00
1.11	Open timbering in foundation trenches including strutting and shoring complete (measurements to be taken of the face area timbered.)		
1.11.1	Depth not exceeding 1.5 M.	sqm	178.00
1.11.2	Depth exceeding 1.5 M. but not exceeding 3 M.	sqm	181.00
1.11.3	Depth exceeding 3.0 M.	sqm	185.00

1.12	Open timbering in case of shaft, wells cesspit, manholes and like, including strutting, shoring etc. complete (measurements to be taken of face are timbered)		
1.12.1	Depth not exceeding 1.5 M.	sqm	148.00
1.12.2	Depth exceeding 1.5 M. but not exceeding 3 M.	sqm	154.00
1.12.3	Depth exceeding 3.0 M	sqm	179.00
1.13	Extra for planking and strutting in open timbering if required to be left permanently in position (Face to face area of the timber permanently left to be measured).	sqm	1,292.00
1.14	Close timbering in foundation trenches including strutting, shoring and packing cavities where ever required complete (Measurement to be taken of the face area timbered).		
1.14.1	Depth not exceeding 1.5 M.	sqm	348.00
1.14.2	Depth exceeding 1.5 M. but not exceeding 3 M.	sqm	352.00
1.14.3	Depth exceeding 3.0 M.	sqm	355.00
1.15	Close timbering in case of shaft, walls, cesspit, manholes and like including strutting shoring and packing cavities (wherever required complete measurement to be taken of the face area timbered).		
1.15.1	Depth not exceeding 1.5 M.	sqm	367.00
1.15.2	Depth exceeding 1.5 M. but not exceeding 3 M.	sqm	392.00
1.15.3	Depth exceeding 3.0 M.	sqm	418.00
1.16	Extra for planking, strutting and packing materials for cavities in close timbering if required to be left permanently in position (face area of the timber permanently left, to be measured).	sqm	2,521.00
1.17	Filling from available excavated stuff (Excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20cm in depth consolidating each deposited layer by ramming and watering with a lead upto 50 M. and lift upto 1.5 M.	cum	65.00
1.18	Providing and filling in plinth with sand/ Crusher dust and hard moorum under floor in layers not exceeding 20cm in depth consolidating each deposited layer by ramming and watering, including dressing etc. complete.	cum	371.00
1.19	Providing filling and compacting local earth (from approved source pit) in layers not exceeding 20cm in depth consolidating each deposited layer by ramming and watering, including dressing etc. complete.	cum	242.00
1.20	Excavating holes upto 0.25 cum including getting out the excavated soil, then returning the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering etc, disposing of surplus excavated soil; as directed within a lead of 50 m and lift upto 1.5 m.		
1.20.1	All kinds of soil.	each	44.00
1.20.2	Ordinary rock	each	110.00
1.20.3	Hard rock (requiring blasting)	each	219.00
1.20.4	Hard rock (blasting prohibited)	each	293.00
1.21	Deduct for the serviceable excavated stone received from the excavation of hard rock which is the property of contractor.	cum	203.00
1.22	Supplying chlorpyrifos/ Lindane emulsifiable concentrate of 20% in sealed containers including delivery as specified.	litre	208.00

1.23	Diluting chemical emulsion (chlorpyrifos/ lindane) in water as per manufacturers recommendation and injecting for post - constructional anti-termite treatment (excluding cost of chemical emulsion):		
1.23.1	Along external wall where the apron is not provided using diluted chemical emulsion @ 7.5 litres / sqm of the vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. complete:	metre	9.10
1.23.2	Along external wall below concrete or masonry apron along the plinth wall using diluted chemical emulsion @ 0.65 litres per hole including drilling 12mm dia holes 300mm apart and plugging the same with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing apron after injecting chemical emulsion.	metre	15.00
1.23.3	Treatment of masonry wall/ soil under existing floors using diluted chemical emulsion @ one litre per hole, including drilling 12 mm diameter holes at the junction of floor and walls along the cracks on the floor at the interval of 300 mm and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor :	metre	10.50
1.24	Diluting chemical emulsion (chlorpyrifos/ lindane) in oil or kerosene based solution as per manufacturers recommendation and injecting the diluted chemical emulsion for post - constructional anti-termite treatment of wood work at points of contact @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same.	metre	118.00
1.25	Diluting chemical emulsion (chlorpyrifos/ lindane) in water as per manufacturers recommendation and injecting for pre-constructional curative cum preventive anti-termite treatment:(Five year service guarantee bond to be signed by contractor)		
1.25.1	Surface treatment by spreading emulsion under floor, over the plinth area before laying base concrete @ 5 litres / sqm	sqm	27.50
1.25.2	Treatment of inside of plinth masonry wall on using diluted chemical emulsion @ 1.5 litre per hole, including drilling 12 mm diameter holes in plinth wall below plinth protection at the interval of 300 mm and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand).	metre	19.00
1.25.3	Treatment of outer side of plinth masonry wall using diluted chemical emulsion @ 1.5 litre per hole, including drilling 12 mm diameter holes in plinth wall at the junction of floor at the interval of 300 mm and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand).	metre	13.50
1.26	Carriage by mechanical transport upto 5 km lead:		
1.26.1	Earth	cum	111.00
1.26.2	Sludge	cum	89.00
1.26.3	Dismantled Building debris (Mulba)	cum	91.50
1.27	Extra for mechanical transport for every one km or part thereof beyond first 5 km lead.		
1.27.1	Earth	cum.km	9.00
1.27.2	Sludge	cum.km	7.20
1.27.3	Dismantled Building debris (Mulba)	cum.km	9.00
2	FORM WORK		
2.1	Providing and fixing form work including centering, shuttering, strutting, staging, propping bracing etc. complete and including its removal at all levels, for:		
2.1.1	Foundations, footings, bases of columns plinth beam, curtain wall in any shape and size and all type of wall below plinth level.	sqm	139.00

2.1.2	Wall of any thickness including attached pilasters, buttresses etc. in super structure.	sqm	228.00
2.1.3	Window sills, anchor blocks, string course, bends, copings, bed plates and like.	sqm	184.00
2.1.4	Edge of slab, breaks in floor and walls upto 200mm.	metre	34.00
2.1.5	Columns, Pillars, Piers and likes- rectangular or square in shape	sqm	297.00
2.1.6	Columns, beams & walls- circular or any other geometrical shape other than square and rectangular in all sizes	sqm	356.00
2.1.7	Suspended floors, roofs, access platform, balconies (plain surfaces) and shelves (cast in situ)	sqm	235.00
2.1.8	Beams, lintels, cantilevers & walls	sqm	202.00
2.1.9	Vertical and horizontal fins individually or forming box, louvers bands, almirah shelves and likes.	sqm	336.00
2.1.10	Folded plates slabs	sqm	194.00
2.1.11	Arches, domes and likes, upto 6 M. Span.	sqm	584.00
2.1.12	Arches, domes and likes, exceeding 6 M. span	sqm	890.00
2.1.13	Weather shade, chhajja, Cornices and mouldings	sqm	294.00
2.1.14	Spiral / folded plate type stair cases including risers and landings	sqm	307.00
2.1.15	Stair cases of all types excluding spiral and folded plate type, including risers and landings	sqm	230.00
2.1.16	Coffer/ waffle/ Grid slab of any size or shape. Note: (1) Any grid box of area less than 1 sqm will only be paid in this item. (2) Only plan area is to be measured and paid and grid beams or fins will not be paid separately.	sqm	510.00
2.2	Extra for additional height every 1m or part thereof where height of staging for form work exceeds 4.0 metre with adequate bracing, propping etc at all levels, for suspended floor, roof, landing, beam and balcony. (only plan area is to be measured):	sqm	40.50
2.3	Extra for providing fixing and removing of propping from lower floor upwards for the concreting. Propping should be provided two floors below. The props of lower floor must be 50% of the props of the floor above including wedging etc. complete. In case propping is done in one floor below, only half the rate shall be paid.	sqm	17.00
2.4	Extra for unsupported individual columns with height more than 4.0 m from the immediate lower level in every floor. (full area of column is to be paid)	sqm	29.50
3	CEMENT CONCRETE (PLAIN AND REINFORCED)		
3.1	Providing and laying nominal mix plain cement concrete with crushed stone aggregate using concrete mixer in all works upto plinth level excluding cost of form work.		
3.1.1	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size).	cum	2,409.00
3.1.2	1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size).	cum	2,659.00
3.1.3	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size).	cum	2,970.00
3.1.4	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 40mm nominal size).	cum	3,552.00
3.1.5	1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate 20mm nominal size).	cum	4,073.00

3.2	Providing and laying nominal mix reinforced cement concrete with crushed stone aggregate using concrete mixer in all works upto plinth level excluding cost of form work. (Note :Excess/ less cement used as per design mix is payable/ recoverable separately)		
3.2.1	1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate 20mm nominal size).	cum	4,163.00
3.3	Providing and laying design mix reinforced cement concrete with crushed graded stone aggregate 20mm nominal size using batching plant, transit mixer and concrete pump, in all works upto plinth level excluding cost of form work.		
3.3.1	M-20 Grade	cum	4,231.00
3.3.2	M-25 Grade	cum	4,298.00
3.3.3	M-30 Grade	cum	4,362.00
3.3.4	M-35 Grade	cum	4,426.00
3.3.5	M-40 Grade	cum	4,490.00
3.4	Extra for laying PCC/RCC of any grade in superstructure above plinth level for every floor or part thereof in addition to rate for foundation and plinth:	cum	97.50
3.5	Providing and laying pre-stressed cement concrete of M-35 grade in superstructure including form work but excluding reinforcement complete as per drawing and specifications and IS : 1343-2012.	cum	6,325.00
3.6	Providing and laying High tensile steel wires/ strands at any level including all accessories i.e. sheathing duct, tube anchorage set, and stressing, stressing operations and grouting with cement complete as per drawing and technical specifications.	kg	145.00
3.7	Providing and mixing in cement concrete, triangular polyester fiber Recron 3s (Anti-shrinkage Admixture) of 12 mm length of approved make like Reliance industries Ltd etc. in proportion as recommended by manufacturer.	kg	366.00
3.8	Extra for providing and fixing expanded metal mesh of size 20mm x60mm and strands 3.0mm wide, 1.6 mm thick, weighting 2.64 kg. per sqm for encasing of rolled steel section in beams, columns and grillages but excluding cost of hangers.	sqm	383.00
3.9	Extra for precast PCC/ RCC work of any mix including form work, hoisting and fixing in Cement Mortar. 1:2 (1 Cement : 2 coarse sand) and finishing with cement plaster in Cement Mortar 1:3 (1 Cement : 3 coarse sand) but excluding reinforcement.	cum	469.00
3.10	Extra for laying PCC/ RCC, in or under water or liquid mud including cost of pumping or bailing out of water and removing slush etc. complete:	cum	261.00
3.11	Extra for laying PCC/ RCC, in or under foul conditions.	cum	97.00
3.12	Providing and placing in position reinforcement for R.C.C. work including straightening, cutting, bending, binding etc. complete as per drawings including cost of binding wire in foundation and plinth all complete:		
3.12.1	Thermo-Mechanically treated bars FE 415	kg	54.50
3.12.2	Thermo-Mechanically treated bars FE 500D	kg	54.50
3.12.3	Thermo-Mechanically treated bars FE 550D	kg	55.00
3.12.4	Cold twisted bar / Hot rolled deformed steel	kg	53.50
3.13	Providing and laying damp proof course (upto 50mm thick) with plain cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded crushed stone aggregate 20mm nominal size) including form work.	cum	4,237.00

3.14	Providing and mixing water proofing material in PCC/ RCC work in the proportion recommended by the manufacturer.	kg	43.50
3.15	Applying a coat of hot bitumen VG-10 using @ 1.7kg/ sqm on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	sqm	93.50
3.16	Making 50mm thick plinth protection of plain cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded crushed stone aggregate 20mm nominal size) over 75mm bed of dry brick ballast 40mm nominal size well rammed and consolidated and grouted with sand including finishing the top smooth.	sqm	273.00
3.17	Providing and laying 25mm thick eves board/ facia made with cement mortar 1:3 (1 cement: 3 coarse sand) and chicken mesh including cost of form work required but excluding steel reinforcement.	sqm	767.00
3.18	Providing and filling in position, blown bitumen in expansion joints per cm. depth and per cm width.	metre	5.10
3.19	Providing and fixing in position copper plate as per design for expansion joints.	kg	671.00
3.20	Providing and fixing aluminium strip 1.60 mm thick on expansion joints with iron screws as per design to match the colour, shade of wall treatment .	sqm	1,397.00
3.21	Providing and fixing in position impregnated fibre board conforming to IS: 1838 in expansion joints, including cost of primer, sealing compound all complete.		
3.21.1	12 mm thick	sqm	491.00
3.21.2	25mm thick	sqm	768.00
3.22	Providing and fixing 6 mm thick asbestos sheet covering over expansion joints with iron screws as per design to match the colour/shade of wall treatment.	sqm	534.00
3.23	Providing and fixing in expansion joint pre moulded cross linked polymer based filler as per IS:1838 (part III) of approved make including cutting to required size and shape etc complete.		
3.23.1	12 mm thick	sqm	590.00
3.23.2	25 mm thick	sqm	1,110.00
3.23.3	50 mm thick	sqm	2,207.00
3.24	Providing and applying for hermetically water proof sealing of vertical / horizontal expansion joint with approved make Poly Sulphide Sealant compound (two component elastomeric sealant) having 80% tensile modulus elongation, proper bonding with building surface complete with cleaning and preparing of building surface, applying polymer solvent primer, providing and fixing PU back up rod of suitable dia in expansion joint for core making, filling with Poly Sulphide Sealant (Sealant filling depth should be minimum half of the joint gap), finishing and smoothing the surface etc complete. The application shall be got done through the authorised applicator of the manufacture of compound		
3.24.1	For gap upto 25 mm wide	metre	520.00
3.24.2	For gap 40 mm wide	metre	962.00
3.24.3	For gap 50 mm wide	metre	1,397.00
4	WATER PROOFING		

4.1	<p>Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground level for underground structures using rough Kota stone and consisting of:</p> <p>i) 1st layer of 22mm to 25mm thick approved rough Kota stone slab over a 25mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound.</p> <p>ii) 2nd layer of 25mm thick cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound.</p> <p>iii) Finishing top with stone aggregate of 10mm to 12mm nominal size spreading @ 8 cum/sqm thoroughly embedded in the 2nd layer.</p>	sqm	672.00
4.2	<p>Providing and laying integral cement based treatment for water proofing on the vertical surface at all levels by fixing 22 mm to 25mm thick rough Kota stone slab with cement slurry mixed with water proofing compound conforming to IS:2645 with a gap of 20mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with 20mm thick cement mortar 1:3 (1 cement : 3 coarse sand) with neat cement punning mixed with water proofing compound complete.</p>	sqm	719.00
4.3	<p>Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of WC, kitchen and the like consisting of:</p> <p>i) 1st course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645 including rounding off junction of vertical and horizontal surface.</p> <p>ii) 2nd course of 20mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound including rounding off junction of vertical and horizontal surface.</p> <p>iii) 3rd course of applying blown or residual bitumen applied hot @ 1.7 Kg. per sqm of area.</p> <p>iv) 4th course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 Kg. per sqm of area.</p>	sqm	445.00
4.4	<p>Providing and placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :</p>		
4.4.1	Serrated with central bulb (225mm wide, 8-11mm thick).	metre	455.00
4.4.2	Dumb bell with central bulb (180mm wide, 8mm thick).	metre	410.00
4.4.3	Kickers (320mm wide, 5mm thick).	metre	421.00

4.5	<p>Providing and laying water proofing treatment in sunken portion of WCs, bathroom, kitchen etc., by applying cement slurry mixed with water proofing cement compound consisting of following applications including surface preparation:</p> <p>i) 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.</p> <p>ii) 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.</p> <p>The rate includes treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.</p>	sqm	182.00
4.6	<p>Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of following applications including surface preparation: i) 1st layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. ii) 2nd layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. iii) 3rd layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with coarse sand @ 1.289 kg/sqm and water proofing cement compound @ 0.07 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30cm on parapet wall and tucked into groove in parapet all around. iv) 4th and final layer of brick tiling with cement mortar (which will be paid for separately) For the purpose of measurement the entire treated surface will be measured.</p>	sqm	283.00
4.7	<p>Providing and laying integral cement based water proofing treatment on roofs, balconies, terraces etc with average thickness of 120mm and minimum thickness at khurra as 65 mm, consisting of following operations including surface preparation:</p> <p>i) Applying a slurry coat of neat cement using 2.75 kg/sqm. of cement mixed with water proofing compound conforming to IS. 2645 over the RCC slab including adjoining walls upto 300mm height.</p> <p>ii) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) mixed with water proofing compound conforming to IS : 2645 over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) mixed with water proofing compound conforming to IS : 2645 to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.</p> <p>iii) After two days of proper curing applying a second coat of cement slurry using 2.75kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645.</p> <p>iv) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) mixed with water proofing compound conforming to IS : 2645 including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3mm deep.</p> <p>v) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test.</p>	sqm	611.00

	All above operations to be done in order:		
4.8	Providing and laying six course damp proof treatment in basement, sump, reservoir etc. consisting of first, third, fifth course of blown type petroleum bitumen of IS grade 85/25 hot @ 1.6kg/ sqm and 2nd & 4th course of self finished bitumen tar felt with priming coat with bitumen solution applied at the rate of 0.25 litre per sqm and sixth and final course of stone grit 6mm and down pea sized gravel spreaded at 0.008 cum per sqm including preparation of surface by grouting cracks, providing C.C. fillets, rounding of corners and cleaning and drying of the surface before priming coat is applied complete.		
4.8.1	With bitumen felt of type 2, grade 2 (Fibre base) in 2nd and 4th course.	sqm	402.00
4.8.2	With bitumen felt of type 3, grade 2 (Hessian base) in 2nd and 4th course.	sqm	390.00
4.8.3	With bitumen felt of type 2, grade 2 (Fibre base) in 2nd course and & type 3, grade 2 (Hessian base) in 4th course.	sqm	396.00
4.9	Providing and laying eight course damp proofing treatment in basement, sumps, reservoirs etc. consisting of first, third, fifth and seventh course of blown type petroleum bitumen of IS grade 85/ 25 applied hot at the rate of 1.60kg/ sqm. and 2nd 4th, 6th course of self finished bitumen tar felt with priming coat with bitumen solution applied at the rate of a minimum 0.25 litre per sqm eight and final course of stone grit 6mm and down pea sized gravel spreaded at 0.008 cum per sqm including preparation of surface by grouting cracks, providing C.C. fillets, rounding of corners and cleaning and drying of the surface before priming coat is applied complete.		
4.9.1	With bitumen felt of type 2, grade 2 (Fibre base) in 2nd, 4th & 6th course.	sqm	564.00
4.9.2	With bitumen felt of type 3, grade 2 (Hessian base) three courses.	sqm	545.00
4.9.3	With bitumen felt of type 2 grade 2 (Fibre base) in two courses, one course with type 3 grade 2 (Hessian base).	sqm	558.00
4.9.4	With bitumen felt of type 2, grade 2 (Fibre base) one course and two courses with type 3 grade 2 (Hessian base).	sqm	552.00
4.10	Providing and laying three course damp proofing treatment in water reservoir, sump, tank etc., with bitumen felt and blown type petroleum bitumen at the rate of 1.6 Kg/sqm 1st, 3rd course and 2nd course with tar felt including applying priming coat at the rate of 0.25 litre per sqm and fillets and rounding corners, wherever required, complete.		
4.10.1	Bitumen felt of type 2 grade 2 (Fibre base)	sqm	321.00
4.10.2	With tar felt (Hessian base) type 3 grade 2.	sqm	309.00
4.11	Supplying and applying bituminous solution primer on roof and or wall surface at 0.24 litre per sqm.	sqm	20.50
4.12	Deduct for omitting in water proofing treatment final course of spreading stone grit 6mm down size or pea sized gravel :		

4.12.1	At 6 cum per sqm.	sqm	11.50
4.12.2	At 8 cum per sqm.	sqm	13.50
4.13	Grading roof for water proofing treatment with:		
4.13.1	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	3,817.00
4.13.2	Cement mortar 1:3 (1 cement : 3 coarse sand)	cum	4,612.00
4.13.3	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	3,801.00
4.14	Providing and fixing 2mm thick (for corrugated roof sheets) APP (Atactic Polypropylene Polymer) modified prefabricated five layer 2mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sq. mtr. by the same membrane manufacture of density at 25°C, 0.87 - 0.89 kg/ ltr and viscosity 70 - 160 cps. Over the primer coat the layer of membrane shall be laid using Butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be: Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/ 5cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto - 2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacture of membrane.	sqm	269.00
4.15	Providing and laying 3mm thick APP (Atactic Polypropylene Polymer) modified prefabricated five layer, 3mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufactured of density at 25°C, 0.87 - 0.89 kg/ltr and viscosity 70 - 160 cps. over the primer coat the layer of membrane shall be laid using Butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be : Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/5cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147.	sqm	358.00
4.16	Providing and laying 3mm thick APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ltr and viscosity 70-160 cps. Over the primer coat the layer of membrane shall be laid using Butane Torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under :Joint strength in longitudinal and transverse direction at 23°C as 650/450N/5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147.	sqm	396.00
4.17	Extra for covering top of membrane with Geotextile, 120gsm non woven, 100% polyester of thickness 1 to 1.25mm bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation.	sqm	51.50

4.18	Providing and fixing broken glazed tiles on top of hot bitumen @ 1.00 kg/ sqm (0.80 kg-85/25 grade and 0.20 kg -80/100 grade) and joint filled with cement mortar 1:2 (1 cement :2 marble dust) mixed with water proofing compound complete.	sqm	134.00
4.19	<p>Providing water proofing treatment against dampness & Seepage on RCC or lime concrete roof/ terrace, over head tank, sunken slab consisting of following operations:</p> <p>i) Removing loose material and 25 mm cement concrete/ cement plaster including gola etc. and cleaning the surface.</p> <p>ii) Drilling 20mm dia holes spacing not more than 300 mm center to center in cracks and joint of wall & slab.</p> <p>iii) Injecting polymer based high strength water proofing compound of approved brand & make, admixed with cement in the ratio as specified by manufacturer, in holes by pressure pump.</p> <p>iv) Leveling the surface by providing and laying 25mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5/6mm) mixed with polymer based high strength water proofing compound of approved brand & make in the ratio as specified by manufacturer.</p> <p>v) Providing and laying of bonding slurry prepared by mixing of cement with approved make and brand acrylic polymer (as per IS 13435 Part-3) in two layers (totaling up-to 3mm thick) by brush. Second layer to be laid after 4 hours of first layer.</p> <p>vi) Providing and laying 15mm thick cement plaster in cement mortar 1:4 (1 cement : 4 coarse sand) and finishing the surface with neat cement admixed with integral water proofing compound (IS: 2645) as per manufacturers recommendations. This operation shall be continued upto 300 height on parapet wall.</p> <p>vii) After a short period of above operation a string marking shall be done making squares of 300x300mm.</p>	sqm	735.00
4.20	<p>Providing post water proofing treatment against dampness & Seepage in walls of basement, plinth, super structure (horizontal or vertical) consisting of following operations:i) Removing loose material and cleaning the surface.ii) Drilling 20mm dia holes in walls/ floor in zigzag manner spacing not more than 150 mm center to center.iii) Injecting polymer based high strength water proofing compound of approved brand & make, admixed with cement in the ratio as specified by manufacturer, in holes by pressure pump.iv) Plugging holes with polymer compound admixed with cement.v) Providing and laying of bonding slurry prepared by mixing of cement with approved make and brand acrylic polymer (as per IS 13435 Part-3) in two layers (totaling up-to 3mm thick) by brush. Second layer to be laid after 4 hours of first layer.vi) Providing and laying 15mm thick cement plaster in cement mortar 1:4 (1 cement : 4 coarse sand) and finishing the surface with neat cement admixed with integral water proofing compound (IS: 2645) as per manufacturers recommendations.</p>	sqm	692.00

4.21	<p>Providing post water proofing treatment against dampness & Seepage in roof, terraces, sunken floor of toilets with reinforced acrylic breathable (polymer content 35%, elongation at break at > 100%) coating consisting of following operations:</p> <p>i) Removing loose material and cleaning the surface.</p> <p>ii) Priming in one coat with water based acrylic emulsion.</p> <p>iii) Three coats with reinforced acrylic breathable polymer.</p>	sqm	611.00
4.22	<p>Providing Water proofing treatment over Roof, Wall, Chhajjas, Balcony with Diamond Shield and Sealer coat or equivalent at leakage/ seepage area consisting of the operation:</p> <p>(i) Surface preparation roughening of surface, opening of cracks in 'V' groove in size of 5mm x 10m (WxD), filling of cracks with putty of Diamond shield with laying fiber glass mesh, Cleaning of surface by scrubbing with steel wire/ Nylon brush. Removing all dust particles and washing with adequate water to clean completely.</p> <p>(ii) Providing and applying 1st coat of diamond shield or equivalent compound (having two component dry powder 80% Chemical 20% (chemical having 30% solid contents) making flexible waterproof and protective modified mortar with minimum thickness 70-80 micron after proper mixing of both the parts of compound along with laying of fiber glass mesh (of weaving size of 10x10 yarn/inch duly coated with alkaline resistant polymer). Allow the coating to set in natural air for minimum 2 Hrs. After 1st coat apply 2nd coat with minimum thickness 100 micron of the same compound. Allow the 2nd coat to set in natural air for minimum 4 Hrs. Total consumption of the diamond shield or equivalent in both coat should be @ 17.90 kg for 10sqm area.</p> <p>(iii) Over the above layers providing and applying 1st coat of sealer compound (Single component High Build elastomeric, flexible, pure acrylic waterproofing membranes having solid content of 65%) minimum 50-60 micron and allow it to set in natural air for minimum 2 Hrs. After 1st coat apply 2nd and final coat 120-140 micron of sealer compound and allow it to set in natural air for minimum 4 Hrs. Consumption of Sealer compound should be @ 5.40 kg per 10 sqm area. The final area appearance of the coating will be milky white</p> <p>(iv) The treated area should be cure with water for 48 hrs by flooding the surface. All above operations to be done in order.</p> <p>The application shall be got done through the authorised applicator of the manufacturer.</p>	sqm	421.00
5	MORTARS		
5.1	Cement Mortar 1:1 (1 cement : 1 fine sand)	cum	5,982.00
5.2	Cement mortar 1:2 (1 cement : 2 fine sand).	cum	4,231.00
5.3	Cement mortar 1:3 (1 cement : 3 fine sand).	cum	3,356.00
5.4	Cement mortar 1:4 (1 cement : 4 fine sand).	cum	2,654.00
5.5	Cement mortar 1:5 (1 cement : 5 fine sand).	cum	2,276.00
5.6	Cement mortar 1:6 (1 cement : 6 fine sand).	cum	1,952.00
5.7	Cement mortar 1:2 (1 cement : 2 coarse sand).	cum	4,231.00
5.8	Cement mortar 1:3 (1 cement : 3 coarse sand).	cum	3,356.00
5.9	Cement mortar 1:4 (1 cement : 4 coarse sand).	cum	2,654.00
5.10	Cement mortar 1:5 (1 cement : 5 coarse sand).	cum	2,276.00

5.11	Cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1,952.00
5.12	Cement mortar 1:8 (1 cement : 8 Coarse sand).	cum	1,628.00
5.13	Cement mortar 1:2 (1 cement : 2 stone dust).	cum	4,231.00
5.14	Cement mortar 1:2 (1 cement : 2 marble dust).	cum	5,029.00
5.15	White cement mortar 1:5 (1 white cement : 5 marble dust).	cum	3,175.00
5.16	White cement mortar 1: 2 (1 white cement : 2 marble dust).	cum	10,877.00
5.17	White cement mortar 1:3 (1 white cement : 3 marble dust).	cum	8,641.00
5.18	White cement mortar 1:5 (1 white cement : 5 marble dust)	cum	5,841.00
5.19	Cement mortar 1:1:3 (1 cement : 1 marble dust : 3 stone dust)	cum	5,398.00
5.20	Mud mortar	cum	244.00
5.21	Cement Concrete 1: 6 : 12 (1 cement : 6 coarse sand : 12 crushed stone aggregate 12.5mm)	cum	2,428.00
6	STONE WORK		
6.1	Random rubble masonry with hard stone in foundation and plinth in Cement Mortar 1:6 (1 Cement : 6 Coarse Sand) including leveling up with cement concrete 1:6:12 (1 cement : 6 coarse sand: 12 stone aggregate 20mm nominal size) upto plinth level.	cum	2,515.00
6.2	Extra for random rubble masonry with hard stone in superstructure above plinth level for every floor or part thereof in addition to rate for foundation and plinth:	cum	203.00
6.3	Extra for random rubble masonry with hard stone in square or rectangular pillars.	cum	191.00
6.4	Extra for random rubble masonry with hard stone in circular pillars.	cum	651.00
6.5	Extra for random rubble masonry with hard stone curved on plan for a mean radius not exceeding 6.00m.	cum	287.00
6.6	Coursed rubble masonry (Second sort) with hard stone in Cement mortar 1:6 (1 cement : 6 coarse sand) upto plinth level.	cum	2,599.00
6.7	Extra for Coursed rubble masonry with hard stone (Second Sort) in superstructure above plinth level for every floor or part thereof in addition to rate for foundation and plinth:	cum	264.00
6.8	Extra for coursed rubble masonry with hard stone (Second Sort) in square or rectangular pillars.	cum	212.00
6.9	Extra for coursed rubble masonry with hard stone (Second sort) in circular pillars.	cum	734.00
6.10	Extra for coursed rubble masonry with hard stone (Second Sort) curved on plan for a mean radius not exceeding 6.0m	cum	287.00
6.11	Extra for laying stone work, in or under water and or liquid, mud including cost of pumping/ bailing out water and removing slush etc. complete.	cum	365.00
6.12	Extra for laying stone work, in or under foul conditions.	cum	97.00
7	BRICK WORK		
7.1	Brick work with modular well burnt clay bricks of crushing strength not less than 35 kg/sqcm and water absorption not more than 20% in foundation and plinth in:		
7.1.1	Cement Mortar 1:3 (1 Cement : 3 Coarse Sand)	cum	4,199.00
7.1.2	Cement Mortar 1:4 (1 Cement : 4 Coarse Sand)	cum	4,010.00
7.1.3	Cement Mortar 1:5 (1 Cement : 5 Coarse Sand)	cum	3,908.00
7.1.4	Cement Mortar 1:6 (1 Cement : 6 Coarse Sand)	cum	3,821.00
7.2	Brick work with modular well burnt clay bricks of crushing strength not less than 25 kg/sqcm and water absorption not more than 20% in foundation and plinth in:		

7.2.1	Cement Mortar 1:5 (1 Cement : 5 Coarse Sand)	cum	3,722.00
7.2.2	Cement Mortar 1:6 (1 Cement : 6 Coarse Sand)	cum	3,635.00
7.2.3	Cement Mortar 1:8 (1 Cement : 8 Coarse Sand)	cum	3,548.00
7.3	Brick work with non-modular well burnt (open bhatta) clay bricks of crushing strength not less than 20 kg/sqcm and water absorption not more than 25% in foundation and plinth in:		
7.3.1	Cement Mortar 1:6 (1 Cement : 6 Coarse Sand)	cum	3,080.00
7.3.2	Cement Mortar 1:8 (1 Cement : 8 Coarse Sand)	cum	2,989.00
7.4	Brick work with modular well burnt (open bhatta) clay bricks of crushing strength not less than 20 kg/sqcm and water absorption not more than 25% in foundation and plinth in:		
7.4.1	Cement Mortar 1:6 (1 Cement : 6 Coarse Sand)	cum	3,263.00
7.4.2	Cement Mortar 1:8 (1 Cement : 8 Coarse Sand)	cum	3,176.00
7.5	Brick work with modular fly-ash lime bricks (FaLG Bricks) confirming to IS:12894-2002 of class designation 4.0 in foundation and plinth in:		
7.5.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	cum	3,641.00
7.5.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	cum	3,452.00
7.5.3	Cement Mortar 1:5 (1 cement : 5 coarse sand)	cum	3,471.00
7.5.4	Cement Mortar 1:6 (1 cement : 6 coarse sand)	cum	3,263.00
7.5.5	Cement Mortar 1:8 (1 cement : 8 coarse sand)	cum	3,157.00
7.6	Extra for brick work in superstructure above plinth level for every floor or part thereof in addition to rate for foundation and plinth:	cum	121.00
7.7	Extra for brick work in square and rectangular pillars. (size not more than 600mm in any direction)	cum	185.00
7.8	Extra for brick work curved on plan upto mean radius not exceeding 6 m including form work.	cum	390.00
7.9	Half brick thick (9cm) brick masonry with modular well burnt clay bricks of crushing strength not less than 35 kg/sqcm and water absorption not more than 20% upto plinth level:		
7.9.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	448.00
7.9.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	435.00
7.10	Half brick thick brick masonry with modular well-burnt clay bricks of crushing strength not less than 25 kg/sqcm and water absorption not more than 20% upto plinth level:		
7.10.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	430.00
7.10.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	417.00
7.11	Half brick thick brick masonry with fly-ash lime bricks (FaLG Bricks) confirming to IS:12894-2002 of class designation 4.0 in superstructure above plinth level upto plinth level:		
7.11.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	394.00
7.11.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	382.00
7.12	Extra for half brick work in superstructure above plinth level for every story or part thereof in addition to rate for upto plinth level:	sqm	11.00
7.13	Half brick thick honey comb brick work with modular well burnt clay bricks of crushing strength not less than 35 kg/sqcm and water absorption not more than 20% upto plinth level.		
7.13.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	337.00
7.13.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	329.00
7.14	Half brick thick honey comb brick work with modular well burnt clay bricks of crushing strength not less than 25 kg/sqcm and water absorption not more than 20% upto plinth level.		

7.14.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	325.00
7.14.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	317.00
7.15	Half brick thick honey comb brick work with fly-ash lime bricks (FaLG Bricks) confirming to IS:12894-2002 of class designation 4.0 upto plinth level.		
7.15.1	Cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	301.00
7.15.2	Cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	293.00
7.16	Extra for half brick thick honey comb brick work in superstructure above plinth level for every story or part thereof in addition to rate for upto plinth level:	sqm	12.00
7.17	Extra for cutting or chamfering of bricks to required shape in brick masonry work	metre	14.50
7.18	Providing 10cm. x 7.60 cm. drip course with specially moulded burnt bricks of crushing strength not less than 35 kg/sqcm and water absorption not more than 20% at junction of roof and walls in cement mortar 1:4 (1 cement 4 fine sand)	metre	69.00
7.19	Moulding and cornices with brick masonry using bricks of crushing strength not less than 35 kg/sqcm and water absorption not more than 20% in cement Mortar 1:4 (1 cement 4 coarse sand) including cement plaster 15 mm thick, 10 cm projected, 20 cm deep (40 cm Girth) in cement mortar 1:4 (1 cement : 4 fine sand) at any floor.	metre	252.00
7.20	Extra for providing and placing in position hopping 25x1.60 mm or 2 Nos 6mm dia MS bars reinforcement at every third course of half brick masonry.	sqm	62.50
7.21	Extra for laying brick work in/under water and/or liquid mud including cost of pumping or bailing out water and removing slush etc. complete.	cum	146.00
7.22	Extra for laying brick work in or under foul conditions.	cum	97.00
7.23	Extra for brick work, where height of work exceeds 4.0 metre from immediate below floor level.	cum	94.50
7.24	Precast cement concrete block masonry work with precast blocks having crushing strength 75 kg/sqcm in cement mortar 1:6(1 Cement :6 coarse sand) .(To be used in boundary wall and plaster shall not be done.)	cum	4,680.00
7.25	Providing and laying AAC Autoclaved aerated concrete block confirming to IS: 2185 (Part-3)-1984) in block masonry with AAC blocks of width 100/ 200mm height 200/250/300mm, length 400/500/600 mm (approved sizes) with cement mortar 1 :6 (1 Cement :6 coarse sand) in superstructure. AAC blocks should have specific gravity 0.6 to 0.65 and crushing strength should not be less than 3 N/ sqmm (testing as per IS: 6441 - 1972).	cum	4,541.00
8	WOOD AND PVC WORK		
8.1	Providing wood work in frames of doors, windows, clerestory windows and other frames wrought framed and fixed in position.		
8.1.1	Teak wood	cum	#####
8.1.2	Sal, bijasal, benteak, khair, haldu	cum	61,051.00
8.2	Providing wood work in frames of false ceiling, partition etc. sawn and put in position with main batten 125x50mm (nominal) and cross batten 50x38mm (nominal) both at spacing of 600mm center to center.		
8.2.1	Teak wood	cum	#####
8.2.2	Sal, bijasal, benteak, khair, haldu	cum	62,544.00

8.3	Providing 40x5mm iron hold fast 40cm long including fixing to frame with 10mm bolts nuts and wooden plug and embedding in Cement Concrete 1:2:4 in blocks of size 30x10x15cm.	each	72.50
8.4	Providing and fixing Dash fastener (for fixing door/ window frames) on C.C. / R.C.C./ Brick masonry surface backing including drilling necessary holes and the cost of bolt etc complete.		
8.4.1	Dash fastener 6x75mm	each	20.50
8.4.2	Dash fastener 10x75mm	each	27.50
8.4.3	Dash fastener 12x100mm	each	39.00
8.5	Extra for additional labour for circular work such as frames of fan lights.		
8.5.1	Teak wood	cum	12,199.00
8.5.2	Sal, bijasal, benteak, khair, haldu	cum	6,828.00
8.6	Providing and fixing 40mm thick paneled or glazed or paneled and glazed shutter frames for doors excluding hinges and paneling. (Area of shutter to be measured without deducting paneling area)		
8.6.1	Teak wood	sqm	2,906.00
8.6.2	Bijasal, benteak, khair, haldu	sqm	1,768.00
8.7	Providing and fixing 35mm thick paneled or glazed or paneled and glazed shutter frames for doors excluding hinges and paneling. (Area of shutter to be measured without deducting paneling area)		
8.7.1	Teak wood	sqm	2,620.00
8.7.2	Bijasal, benteak, khair, haldu	sqm	1,605.00
8.8	Providing and fixing 30mm thick paneled or glazed or paneled and glazed shutter frames for doors excluding hinges and paneling. (Area of shutter to be measured without deducting paneling area)		
8.8.1	Teak wood	sqm	2,256.00
8.8.2	Bijasal, benteak, khair, haldu	sqm	1,397.00
8.9	Providing and fixing 35mm thick glazed shutter frames for windows, clerestory windows, ventilators etc. using glass panes including M.S. butt hinges with necessary screws but excluding glass panes. (Area of shutter to be measured without deducting paneling area).		
8.9.1	Teak wood	sqm	3,017.00
8.9.2	Bijasal, benteak, khair, haldu wood.	sqm	1,885.00
8.10	Providing and fixing 30mm thick glazed shutter frames for windows, clerestory windows, ventilators etc. using glass panes including M.S. butt hinges with necessary screws but excluding glass panes. (Area of shutter to be measured without deducting paneling area).		
8.10.1	Teak wood	sqm	2,653.00
8.10.2	Bijasal, benteak, khair, haldu wood.	sqm	1,677.00
8.11	Providing and fixing glass panes in glazed or paneled and glazed shutters of doors and window, clearstory windows etc (Only area of glass panes to be measured).		
8.11.1	4mm thick	sqm	415.00
8.11.2	5mm thick	sqm	502.00
8.11.3	6mm thick	sqm	589.00
8.11.4	8mm thick	sqm	814.00

8.12	Providing and fixing flush door shutters, conforming to IS : 2202 (Part-I), decorative type core of block board construction with frame of first class hard wood and well matched teak ply veneering with vertical grains or cross bands and face veneers on both faces of shutters excluding hinges.		
8.12.1	40 mm. thick (single leaf)	sqm	2,467.00
8.12.2	35 mm. thick (single leaf)	sqm	2,005.00
8.12.3	30 mm. thick (single leaf)	sqm	1,832.00
8.12.4	25 mm. thick (single leaf)	sqm	1,659.00
8.12.5	25 mm. thick (double leaf for cupboard shutters with piano type hinges)	sqm	1,669.00
8.13	Providing and fixing flush door shutters, conforming to IS 2202 (Part 1), interior grade, commercial type, core of block board construction with frame of first class hard wood and well matched commercial ply veneering with vertical grains, cross bands and face veneers on both faces of shutters excluding hinges.		
8.13.1	40 mm. thick (single leaf)	sqm	1,601.00
8.13.2	35 mm. thick (single leaf)	sqm	1,370.00
8.13.3	30 mm. thick (single leaf)	sqm	1,197.00
8.13.4	25 mm. thick (single leaf)	sqm	1,081.00
8.13.5	25 mm. thick (double leaf for cupboard shutters with piano type hinges)	sqm	1,092.00
8.14	Providing and fixing flush door shutters, core of block board construction with frame of first class hard wood and well matched first class Indian teak ply veneering on one face and commercial ply veneering on the other face of the shutter with vertical grains, cross bands and face veneering excluding hinges.		
8.14.1	40 mm. thick (single leaf)	sqm	2,034.00
8.14.2	35 mm. thick (single leaf)	sqm	1,688.00
8.14.3	30 mm. thick (single leaf)	sqm	1,514.00
8.14.4	25 mm. thick (single leaf)	sqm	1,370.00
8.14.5	25 mm. thick (double leaf for cupboard shutters with piano type hinges)	sqm	1,380.00
8.15	Extra for double leaf shutter instead of single leaf.	sqm	52.00
8.16	Providing and fixing PVC membrane foil coated (laminated) flush door shutters, made with core of block board with frame of first class hard wood, coated with 0.30mm membrane pasted with resin using vacuum treatment process complete all but excluding hinges.		
8.16.1	35 mm thick (single leaf)	sqm	1,982.00
8.16.2	30 mm thick (single leaf)	sqm	1,768.00
8.17	Providing and fixing PVC membrane foil coated (laminated) flush door shutters, made of partical board coated with 0.30mm membrane pasted with resin using vacuum treatment process complete all but excluding hinges.		
8.17.1	35 mm thick (single leaf)	sqm	1,578.00
8.17.2	30 mm thick (single leaf)	sqm	1,370.00
8.18	Providing and fixing lipping with second class teak wood lipping on all edges of shutters.		
8.18.1	25 x 6 mm size	metre	42.00
8.18.2	30 x 6 mm size	metre	48.50
8.18.3	35 x 6 mm size	metre	54.50

8.18.4	40 x 6 mm size	Metre	61.50
8.19	Extra for providing vision panel not exceeding 0.10 sqm in all type of flush shutters (excluding cost of glass)		
8.19.1	Rectangular or square	each	69.00
8.19.2	Circular	each	91.50
8.20	Extra for providing louvers in flush doors upto 0.20 sqm		
8.20.1	Decorative type doors (50 x 5 mm)	sqm	191.00
8.21	Extra for cutting rebate in flush door shutter (total area of door shutter to be measured).	sqm	46.00
8.22	Providing and fixing paneling in paneled or paneled and glazed shutters for doors etc. (only area of paneling to be measured). Paneling for or paneled and glazed shutters 25 mm to 40 mm thick:		
8.22.1	Teak wood (16mm thick panel)	sqm	1,842.00
8.22.2	Bijasal, Haldu, Benteak, Khair (16mm thick panel)	sqm	1,167.00
8.22.3	12 mm thick pre-laminated particle board with one side decorative and other side balancing lamination, flat pressed 3 layer & graded (medium density) Grade I, Type II conforming to IS : 12823 (exterior grade).	sqm	1,126.00
8.22.4	12 mm thick pre-laminated particle board with both side decorative lamination, flat pressed 3 layer & graded (medium density) Grade I, Type II conforming to IS : 12823 (exterior grade).	sqm	1,172.00
8.22.5	12mm thick pre-laminated particle board flat pressed with decorative lamination on one side and balancing lamination on other side exterior Grade - I MDF Board 12 mm thick confirming to IS:14587,	sqm	1,012.00
8.22.6	12mm thick pre-laminated particle board flat pressed with decorative lamination on both sides exterior Grade - I MDF Board 12 mm thick confirming to IS:14587.	sqm	1,070.00
8.22.7	12 mm thick ply teak veneering on both faces	sqm	1,813.00
8.22.8	12 mm thick solid PVC sheet with decorative lamination one side and other side balancing lamination of approved quality and make	sqm	964.00
8.22.9	12 mm thick solid PVC sheet with decorative lamination on both sides of approved quality and make	sqm	1,022.00
8.23	Providing and fixing 35mm thick wire gauge shutter having top and style rail 95mm width, bottom and lock rail 197mm width, using galvanized M.S. wire dia of 0.45 mm for doors, windows, clerestory windows excluding hinges.		
8.23.1	Teak Wood	sqm	2,891.00
8.23.2	Bijasal, Haldu, Benteak, Khair	sqm	1,888.00
8.24	Providing and fixing 30mm thick wire gauge shutter having top and style rail 95mm width, bottom and lock rail 197mm width, using galvanized M.S. wire dia of 0.45mm for doors, windows, clerestory windows excluding hinges.		
8.24.1	Teak Wood	sqm	2,477.00
8.24.2	Bijasal, Haldu, Benteak, Khair	sqm	1,722.00
8.25	Extra for providing fixing galvanized M.S. wire dia of 0.60 mm instead of wire dia 0.45mm to doors, windows and clerestory windows.	sqm	18.00
8.26	Providing and fixing 40mm thick louvered shutters fixed with venetians 12mm thick for window excluding hinges.		
8.26.1	Teak Wood	sqm	3,735.00
8.26.2	Bijasal, Haldu, Benteak, Khair	sqm	2,425.00

8.27	Providing and fixing louvers 50mm wide and 12 mm thick in grooves in clerestory window frames excluding cost of frame.		
8.27.1	Teak Wood	sqm	1,798.00
8.27.2	Bijasal, Haldu, Benteak, Khair	sqm	1,139.00
8.28	Providing and fixing plain jafri of 35x10mm laths placed 35mm apart (frame to be paid separately) including M.S. straps, fixing 50x12mm beading complete.		
8.28.1	Teak Wood	sqm	1,748.00
8.28.2	Bijasal, Haldu, Benteak, Khair	sqm	1,135.00
8.29	Providing and fixing plain jaffri door, windows shutters excluding, 35x10mm laths placed 35 mm apart including fixing 50x12 mm beading complete excluding hinges with.		
8.29.1	Teak Wood	sqm	2,768.00
8.29.2	Bijasal, Haldu, Benteak, Khair	sqm	1,780.00
8.30	Providing 50x50x50mm thick wood plugs including cutting brick work and fixing in Cm 1:3 (1 cement :3 sand).	each	20.50
8.31	Providing and fixing teak wood plain lining tongue and groove and including wooden/ rawl plugs complete with necessary screws and priming coat on exposed surface.		
8.31.1	38 mm thick	sqm	5,076.00
8.31.2	25 mm thick	sqm	3,243.00
8.31.3	19 mm thick	sqm	2,634.00
8.32	Providing and fixing in wall lining 12mm thick flat pressed three layer (medium density) particle board pre-laminated one side decorative lamination on other side balancing lamination exterior Grade - I MDF Board 12 mm thick conforming to IS:14587 marked including priming coat on unexposed surface, with necessary fixing arrangement and screws etc. complete.	sqm	973.00
8.33	Providing and fixing teak wood jamb lining with necessary screws, priming coat on exposed surfaces etc complete. (only jamb lining area is to be measured)		
8.33.1	40 mm thick	sqm	5,712.00
8.33.2	25 mm thick	sqm	3,962.00
8.34	Providing and fixing 4mm thick ply wood plain lining with necessary screws and primary coat on exposed surface complete with ply facing.		
8.34.1	Teak ply faces	sqm	963.00
8.34.2	Commercial ply faces.	sqm	600.00
8.35	Providing and fixing wall paneling frame made of commercial grade 12mm thick water proof ply strips 100mm wide at 600mm apart center to center vertically and horizontally with necessary screws, wooden plugs etc complete as required.	sqm	552.00
8.36	Providing and fixing commercial grade water proof ply for wall paneling on wooden frame with necessary nails complete as required.		
8.36.1	19mm	sqm	1,231.00
8.36.2	12mm	sqm	827.00
8.36.3	6mm	sqm	548.00
8.37	Providing and fixing approved shade veneering on wood wall paneling complete as required.	sqm	705.00

8.38	Providing and fixing 25mm thick teak wood plain skirting with necessary screws and a priming coat with wood primer on unexposed surfaces.	sqm	3,583.00
8.39	Providing and fixing teak wood moulded beading to doors windows frames including necessary screws and primary coat on exposed surface.		
8.39.1	19x12mm	metre	50.50
8.39.2	25x12 mm	metre	81.00
8.39.3	25x25mm	metre	122.00
8.39.4	50x12mm	metre	122.00
8.39.5	50x19mm	metre	167.00
8.40	Providing and fixing 200 mm wide teak wood moulding such as base moulding, chair rail, architrave, moulded posts moulding skirting including necessary screws and painting on unexposed surfaces with wood primer etc complete for per cm thick.	metre	224.00
8.41	Providing and fixing teak wood archivolt having 100 mm projectors including necessary screws and painting of unexposed surfaces with approved wood primer etc complete for per cm width.	metre	138.00
8.42	Providing and fixing 12mm thick, 100mm wide pelmet with 6mm thick top cover, 20mm dia nickel plated M.S. pipe heavy duty curtain rod and bracket including fixing with 10cm long 25x3mm M.S. flat, rawl plugs, screws etc complete.		
8.42.1	Teak wood	metre	391.00
8.42.2	12 mm thick ply board, commercial veneering both face.	metre	271.00
8.42.3	12 mm thick ply board, commercial veneering on one face and teak veneering on other face.	metre	348.00
8.43	Providing and fixing 12mm thick, 150mm wide pelmet with 6mm thick top cover, 20mm dia nickel plated M.S. pipe (heavy duty) curtain rod and bracket including fixing with 10cm long 25x3mm M.S. flat, rawl plugs etc complete.		
8.43.1	Teak wood	metre	461.00
8.43.2	12 mm thick ply board, commercial veneering both face.	metre	342.00
8.43.3	12 mm thick ply board, commercial veneering on one face and teak veneering on other face.	metre	460.00
8.44	Extra for providing and fixing heavy duty stainless steel pipe for curtain rod with two stainless steel brackets in pelmets instead of M.S. curtain rod of 20mm dia and M.S. brackets. (actual length of rod to be measured)		
8.44.1	12 mm dia	metre	98.50
8.44.2	19/20 mm dia	metre	190.00
8.44.3	25 mm dia	metre	229.00
8.45	Providing and fixing heavy duty stainless steel pipe for curtain/ cloth hanging with two stainless steel brackets in wooden pelmet or wardrobe or any other space including screws and or plastic rawl plugs etc. wherever necessary.		
8.45.1	With 20 mm dia pipe	metre	165.00
8.45.2	With 25 mm dia pipe	metre	190.00
8.45.3	Elliptical pipe made from 25mm dia pipe	metre	229.00

8.46	Providing and fixing decorative curtain rod assembly made of 32mm dia aluminium pipe covered with decorative finish plastic sleeve, 2 Nos or more 100x50x20mm size decorative wooden bracket, 2 Nos 100x50mm dia decorative wooden rod holding end plugs and 50mm dia wooden curtain rings 1 nos for every 100mm of length of curtain rod including PVC rawl plugs etc complete:	metre	263.00
8.47	Providing and fixing Indian teak plywood 4 mm thick in partition including fixing to frames with brass screws etc. complete with 50x12mm teak wood beadings (frames to be paid separately).	sqm	943.00
8.48	Providing and fixing plain asbestos cement sheet 6 mm thick in partition including fixing to frames with necessary screws etc. complete with 50x12mm teak wood beadings (frames to be paid separately).	sqm	562.00
8.49	Providing and fixing 4 mm thick Decorative plywood of approved quality in partition including fixing to frames with necessary screws etc. complete with 50 x 12 mm teak wood beadings (frames to be paid separately).	sqm	1,284.00
8.50	Providing and fixing 25 mm thick wooden shelves supported on 40x40x6 mm T or L iron brackets fixed at suitable distance in 75x75x150mm blocks of M-15 grade cement concrete.		
8.50.1	Teak wood	sqm	3,590.00
8.50.2	Bijasal, Haldu, Benteak, Khair	sqm	2,395.00
8.51	Providing and fixing 38 mm thick wooden shelves supported on 40x40x6 mm T or L in brackets fixed at suitable distance in 75x75x150mm blocks of cement concrete 1:2:4:		
8.51.1	Teak wood	sqm	4,571.00
8.51.2	Bijasal, Haldu, Benteak, Khair	sqm	2,955.00
8.52	Providing, and fixing M.S. round and square bars with MS flat of required pattern in wooden frames for windows & clerestory windows including applying a priming coat of red oxide zinc chromate primer, welding etc complete		
8.52.1	Plain grill	kg	68.00
8.52.2	Ornamental grill	kg	76.00
8.53	Providing and fixing expanded metal 20x60 mm stands 3.25 mm wide and 1.60mm thick to window including 62x19mm beading to teak wood including priming coat of red oxide zinc chromate primer.	sqm	929.00
8.54	Providing & fixing hard drawn steel wire fabric 75x25mm mesh of weight not less than 7.75 kg. per sqm to doors, window frames including 62x19mm teak wood beading including priming coat of red oxide zinc chromate primer.	sqm	1,069.00
8.55	Providing and fixing and galvanized wire mesh of I.S. gauge designation 85 G. with wires 0.56 mm dia to windows and clerestory windows including 19x12mm teak wood beading including priming coat of red oxide zinc chromate primer.	sqm	443.00
8.56	Providing and fixing stainless steel wire mesh of average width of aperture 1.56mm with wire of dia 0.45mm to doors, windows and clerestory windows including 19x12mm teak wood beading etc. complete.	sqm	649.00
8.57	Providing sal wood beams, joints (karries) including hosting fixing in position and applying wood preservative on exposed surface etc. with Salwood.	cum	60,013.00
8.58	Providing and fixing bright finished brass butt hinges with brass polished MS screws complete:		

8.58.1	125x85x5.50 mm (Heavy Type)	each	245.00
8.58.2	100x85x5.50 mm (Heavy Type)	each	195.00
8.58.3	75x65x4.00 mm (Heavy Type)	each	75.50
8.58.4	125x70x4.00 mm (Ordinary Type)	each	153.00
8.58.5	100x70x4.00 mm (Ordinary Type)	each	122.00
8.58.6	75x40x2.50 mm (Ordinary Type)	each	88.50
8.58.7	50x40x2.50 mm (Ordinary Type)	each	57.00
8.59	Providing and fixing bright finished brass parliamentary hinges with brass polished MS screws complete:		
8.59.1	150x125x27x5 mm	each	423.00
8.59.2	125x125x27x5 mm	each	352.00
8.59.3	100x125x27x5 mm	each	286.00
8.59.4	75x100x20x3.20 mm	each	109.00
8.60	Providing and fixing bright finished brass sliding door bolt with nuts and brass polished MS screws complete:		
8.60.1	300x16mm	each	475.00
8.60.2	250x16mm	each	344.00
8.61	Providing and fixing brass door latch with brass polished MS screws complete:		
8.61.1	300x16x5 mm	each	398.00
8.61.2	250x16x5 mm	each	268.00
8.62	Providing and fixing bright finished brass tower bolts (barrel type) with brass polished MS screws complete:		
8.62.1	250x10mm	each	276.00
8.62.2	200x10mm	each	231.00
8.62.3	150x10mm	each	176.00
8.62.4	100x10mm	each	119.00
8.63	Providing and fixing bright finished brass flush bolt with brass polished MS screws complete:		
8.63.1	250 mm	each	269.00
8.63.2	150 mm	each	165.00
8.63.3	100 mm	each	112.00
8.64	Providing and fixing bright finished brass indicating bolt (vacant/engaged) with brass polished MS screws complete:	each	174.00
8.65	Providing and fixing bright finished brass door handles with brass polished MS screws complete:		
8.65.1	125 mm	each	55.50
8.65.2	100 mm	each	49.00
8.65.3	75 mm	each	42.50
8.66	Providing and fixing bright finished brass furniture handles 50 mm with brass screws/nuts etc complete.	each	53.00
8.67	Providing and fixing of bright finished brass mortise latch and lock 100x65mm with six levers and a pair of lever handles with brass polished MS screws etc. complete.	each	971.00
8.68	Providing and fixing of bright finished brass mortise latch 100X65mm and pair of lever handles with brass polished MS screws etc. complete.	each	872.00
8.69	Providing and fixing bright finished brass rim latch and lock 100mm and pair of knob with brass polished MS screws etc. Complete	each	451.00

8.70	Providing and fixing bright finished brass 100mm rim latch with a dead bolt and a pair of knobs, brass polished MS screws etc. complete.	each	424.00
8.71	Providing and fixing special quality bright finished brass cupboard or wardrobe locks with four levers including necessary screws etc. complete (best make of approved quality) :		
8.71.1	40 mm	each	104.00
8.71.2	50 mm	each	113.00
8.71.3	65 mm	each	129.00
8.71.4	75 mm	each	148.00
8.72	Providing and fixing 50mm bright finished brass cupboard or ward robe knob with brass screws.	each	31.00
8.73	Providing and fixing 150mm bright finished brass floor door stopper with rubber cushion & brass polished MS screws etc complete to suit the shutter thickness.	each	73.00
8.74	Providing and fixing bright finished brass hard drawn hooks & eyes with brass polished MS screws etc complete.		
8.74.1	300 mm	each	84.00
8.74.2	250 mm	each	77.50
8.74.3	200 mm	each	64.00
8.74.4	150 mm	each	51.00
8.74.5	100 mm	each	36.00
8.75	Providing and fixing bright finished brass hasp and staple (safety type) with brass polished MS screws complete		
8.75.1	150 mm	each	83.00
8.75.2	115 mm	each	56.50
8.75.3	90 mm	each	43.50
8.76	Providing and fixing bright finished brass hanging door stopper with necessary brass finished MS steel screws complete.	each	44.00
8.77	Providing and fixing antique/ SS finished brass butt hinges with antique/ SS polished MS screw complete:		
8.77.1	125x85x5.50mm (Heavy Type)	each	256.00
8.77.2	100x85x5.50 mm (Heavy Type)	each	205.00
8.77.3	75x65x4.00 mm (Heavy Type)	each	93.00
8.77.4	125x70x4.00mm (Ordinary Type)	each	158.00
8.77.5	100x70x4.00 mm (Ordinary Type)	each	126.00
8.77.6	75x40x2.50 mm (Ordinary Type)	each	79.50
8.77.7	50x40x2.50 mm (Ordinary Type)	each	64.00
8.78	Providing and fixing antique/ SS finished brass parliamentary hinges with antique/ SS polished MS screw complete:		
8.78.1	150x125x27x5 mm	each	442.00
8.78.2	125x125x27x5 mm	each	368.00
8.78.3	100x125x27x5 mm	each	300.00
8.78.4	75x100x20x3.20 mm	each	114.00
8.79	Providing and fixing antique/ SS finished brass sliding door bolt with necessary bolts, nuts and antique/ SS polished MS screw complete:		
8.79.1	300x16mm	each	496.00
8.79.2	250 x 16mm	each	489.00

8.80	Providing and fixing antique/ SS finished brass door latch with antique/ SS polished MS screw complete:		
8.80.1	300 x16x5 mm	each	424.00
8.80.2	250x16x5 mm	each	280.00
8.81	Providing and fixing antique/ SS finished brass tower bolts (Barrel type) with antique/ SS polished MS screw complete:		
8.81.1	250 x10 mm	each	297.00
8.81.2	200 x10mm	each	249.00
8.81.3	150 x 10 mm	each	189.00
8.81.4	100 x10 mm	each	127.00
8.82	Providing and fixing antique/ SS finished brass flush bolts with antique/ SS polished MS screw complete:		
8.82.1	250 mm	each	282.00
8.82.2	150 mm	each	173.00
8.82.3	100 mm	each	119.00
8.83	Providing and fixing antique/ SS finished brass indicating bolt (Vacant/ engaged) with antique/ SS polished MS screw complete:	each	180.00
8.84	Providing and fixing antique/ SS finished brass handles with antique/ SS polished MS screw complete:		
8.84.1	125 mm	each	58.50
8.84.2	100 mm	each	52.00
8.84.3	75 mm	each	31.00
8.85	Providing and fixing antique/ SS finished brass furniture handles 50 mm with antique/ SS polished MS screws/nuts etc complete.	each	52.00
8.86	Providing and fixing 100mm antique/ SS finished brass mortise latch and lock with six levers and a pair of lever handles with antique/ SS polished MS screw complete.	each	1,016.00
8.87	Providing and fixing antique/ SS finished brass 100mm mortise latch with one dead bolt and pair of lever handles with antique/ SS polished MS screw complete.	each	913.00
8.88	Providing and fixing 100 mm antique/ SS finished brass rim latch and lock with a pair of knobs with antique/ SS polished MS screw complete.	each	469.00
8.89	Providing & fixing 100mm antique/ SS finished brass rim latch with a dead bolt and pair of knobs with antique/ SS polished MS screw complete.	each	443.00
8.90	Providing & fixing 150mm antique/ SS finished brass floor door stopper with rubber cushion and antique/ SS polished MS screw complete to suit the shutter thickness.	each	77.00
8.91	Providing and fixing antique/ SS finished brass hard drawn hooks and eyes with antique/ SS polished MS screw complete:		
8.91.1	300 mm	each	87.50
8.91.2	250 mm	each	81.00
8.91.3	200 mm	each	66.50
8.91.4	150 mm	each	53.50
8.91.5	100 mm	each	39.50
8.92	Providing and fixing antique/ SS finished brass hasp and staple (safety type) with antique/ SS polished MS screw complete:		
8.92.1	150 mm	each	87.00
8.92.2	115 mm	each	59.00
8.92.3	90 mm	each	46.00

8.93	Providing and fixing antique/ SS finished brass hanging door stopper with necessary antique/ SS finished MS steel screws complete.	each	49.50
8.94	Providing and fixing M.S. bright finished or black enameled Butt hinges IS : 1341 marked with necessary iron screws:		
8.94.1	125x65x2.12mm	each	30.00
8.94.2	100x58x1.90 mm	each	20.50
8.94.3	75x47x1.70 mm	each	14.00
8.94.4	50x37x1.50 mm	each	9.40
8.95	Providing and fixing M.S. bright finished or black enameled Parliamentary hinges with necessary iron screws:		
8.95.1	150x125x27x2.80 mm	each	78.50
8.95.2	125x125x27x2.80 mm	each	67.50
8.95.3	100x125x27x2.80 mm	each	56.50
8.95.4	75x100x20x2.24 mm	each	41.00
8.96	Providing and fixing M.S. bright finished or black enameled Double spring hinges with iron screws:		
8.96.1	150 mm	each	317.00
8.96.2	125 mm	each	286.00
8.96.3	100 mm	each	247.00
8.97	Providing and fixing M.S. bright finished or black enameled Piano hinges 1mm thick with 35mm wide flange including necessary iron screws.	metre	97.50
8.98	Providing and fixing M.S. nickel plated Piano hinges 1mm thick with 35mm wide flange including necessary iron screws.	metre	111.00
8.99	Providing and fixing M.S. bright finished or black enameled sliding door bolts with bolts, nuts and necessary iron screws:		
8.99.1	300x16mm	each	77.50
8.99.2	250 x 16 mm	each	72.50
8.100	Providing and fixing M.S. bright finished or black enameled door latch with necessary iron screws:		
8.100.1	300x20x6mm	each	53.50
8.100.2	250x20x6mm	each	50.50
8.101	Providing and fixing M.S. bright finished or black enameled 85x12mm pull bolt lock with necessary nuts and necessary iron screws.	each	35.50
8.102	Providing and fixing M.S. bright finished or black enameled Tower bolts (Barrel type) with necessary iron screws:		
8.102.1	250 mm	each	34.50
8.102.2	200 mm	each	29.00
8.102.3	150 mm	each	23.00
8.102.4	100 mm	each	16.50
8.103	Providing and fixing M.S. bright finished or black enameled handles with necessary iron screws:		
8.103.1	125 mm	each	51.00
8.103.2	100 mm	each	45.50
8.103.3	75 mm	each	22.50
8.104	Providing and fixing M.S. bright finished or black enameled hooks and eyes with necessary iron screws:		
8.104.1	300 mm	each	18.00

8.104.2	250 mm	each	15.50
8.104.3	200 mm	each	13.00
8.104.4	150 mm	each	11.00
8.104.5	100 mm	each	7.80
8.105	Providing and fixing M.S. bright finished or black enameled safety hasp and staples with necessary iron screws:		
8.105.1	150 mm	each	35.50
8.105.2	115 mm	each	13.50
8.105.3	90 mm	each	11.50
8.106	Providing and fixing MS bright finished single hanging door stopper with necessary MS steel screws complete.	each	12.50
8.107	Providing and fixing powder coated M.S. butt hinges with necessary iron screws:		
8.107.1	125x65x2.12 mm	each	36.50
8.107.2	100x58x1.90 mm	each	24.50
8.107.3	75x47x1.7 mm	each	16.50
8.107.4	50x37x1.5 mm	each	9.30
8.108	Providing and fixing powder coated M.S. parliamentary hinges with necessary iron screws:		
8.108.1	150x125x27x2.8mm	each	81.50
8.108.2	125x125x27x2.8mm	each	70.50
8.108.3	100x125x27x2.8 mm	each	59.00
8.108.4	75x100x20x2.24 mm	each	39.50
8.109	Providing and fixing powder coated M.S. piano hinges with necessary iron screws:		
8.109.1	Overall width 35mm	each	97.50
8.109.2	Overall width 50 mm	each	111.00
8.109.3	Overall width 65 mm	each	147.00
8.110	Providing and fixing powder coated M.S. pull bolt lock size 85x42mm with bolts, nut and necessary iron screws.	each	37.00
8.111	Providing and fixing powder coated M.S. Safety chain with necessary fixtures for doors. (Weighing not less than 200 gms.)	each	31.50
8.112	Providing and fixing powder coated M.S. sliding door bolts with bolts, nuts and necessary iron screws:		
8.112.1	300x16 mm	each	135.00
8.112.2	250x16 mm	each	127.00
8.113	Providing and fixing powder coated M.S. door latch with necessary iron screws:		
8.113.1	300x20x16 mm	each	46.00
8.113.2	250x20x16 mm	each	41.00
8.114	Providing and fixing powder coated M.S. pull bolt lock of size 85 x 12mm with necessary bolts, nuts and necessary iron screws.	each	34.00
8.115	Providing and fixing powder coated M.S. tower bolts (Barrel type) with necessary iron screws:		
8.115.1	250 x10mm	each	42.50
8.115.2	200 x10mm	each	33.50
8.115.3	150 x10mm	each	27.50
8.115.4	100 x10mm	each	19.00
8.116	Providing and fixing powder coated M.S. handles with necessary iron screws:		

8.116.1	125 mm	each	61.50
8.116.2	100 mm	each	45.50
8.116.3	75 mm	each	34.50
8.117	Providing and fixing powder coated M.S. hooks and eyes necessary iron screws:		
8.117.1	300 mm	each	44.50
8.117.2	250 mm	each	74.00
8.117.3	200 mm	each	89.50
8.117.4	150 mm	each	105.00
8.117.5	100 mm	each	120.00
8.118	Providing and fixing powder coated M.S. hasp and staples (Safety type) necessary iron screws:		
8.118.1	150 mm	each	37.00
8.118.2	115 mm	each	14.00
8.118.3	90 mm	each	12.50
8.119	Providing and fixing powder coated MS hanging door stopper with necessary powder coated MS steel screws complete.	each	15.00
8.120	Providing and fixing aluminium sliding door bolts with 16mm rod, necessary nickel plated iron nuts bolts and screws etc complete.		
8.120.1	300x16mm	each	169.00
8.120.2	250x16mm	each	141.00
8.121	Providing and fixing aluminium door latch with 12mm rod, necessary nickel plated iron nuts bolts and screws etc complete.		
8.121.1	300x12mm	each	71.00
8.121.2	250x12mm	each	51.50
8.122	Providing and fixing aluminium tower bolts (Barrel type) with necessary nickel plated iron screws etc complete.		
8.122.1	250 x10mm	each	70.50
8.122.2	200 x10mm	each	57.50
8.122.3	150 x10mm	each	44.50
8.122.4	100 x10mm	each	31.00
8.122.5	75 x10mm	each	24.50
8.123	Providing and fixing aluminium door handles 2.5mm thick with necessary nickel plated iron screws etc complete.		
8.123.1	150 mm	each	30.50
8.123.2	125 mm	each	26.00
8.123.3	100 mm	each	21.50
8.124	Providing and fixing hanging aluminium door stopper with necessary nickel plated iron screws etc complete.		
8.124.1	Single	each	26.50
8.124.2	Double	each	37.00
8.125	Providing and fixing aluminium door mounted door stopper with necessary nickel plated iron screws etc complete.		
8.125.1	100 mm long	each	45.00
8.125.2	75 mm long	each	38.50
8.125.3	60 mm long	each	32.00
8.125.4	50 mm long	each	25.50

8.126	Providing and fixing powder coated aluminium sliding door bolts with 16mm rod, necessary M.S. nuts bolts and screws etc complete.		
8.126.1	300x16mm	each	175.00
8.126.2	250x16mm	each	150.00
8.127	Providing and fixing powder coated aluminium door latch with 12mm rod, necessary M.S. nuts bolts and screws etc complete.		
8.127.1	300x12mm	each	75.00
8.127.2	250x12mm	each	54.50
8.128	Providing and fixing powder coated aluminium tower bolts (Barrel type) with necessary M.S. screws etc complete.		
8.128.1	250 x10mm	each	74.50
8.128.2	200 x10mm	each	60.00
8.128.3	150 x10mm	each	46.50
8.128.4	100 x10mm	each	32.00
8.128.5	75 x10mm	each	25.50
8.129	Providing and fixing powder coated aluminium door handles 2.5mm thick with necessary M.S. screws etc complete.		
8.129.1	150 mm	each	32.00
8.129.2	125 mm	each	27.50
8.129.3	100 mm	each	22.50
8.130	Providing and fixing hanging powder coated aluminium door stopper with necessary M.S. screws etc complete.		
8.130.1	Single	each	27.50
8.130.2	Double	each	38.50
8.131	Providing and fixing powder coated aluminium door mounted door stopper with necessary M.S. screws etc complete.		
8.131.1	100 mm long	each	47.00
8.131.2	75 mm long	each	40.00
8.131.3	60 mm long	each	33.00
8.131.4	50 mm long	each	26.50
8.132	Providing and fixing stainless steel butt hinges IS : 12817 marked with necessary stainless steel screws etc complete.		
8.132.1	150x2.5mm (heavy)	each	97.50
8.132.2	125x2.5mm (heavy)	each	76.50
8.132.3	100x2.5mm (heavy)	each	52.50
8.132.4	75x2.5mm (heavy)	each	34.50
8.132.5	125x1.9mm (light)	each	60.00
8.132.6	100x1.7mm (light)	each	40.00
8.132.7	75x1.7mm (light)	each	28.00
8.133	Providing and fixing stainless steel cutt hinges having thickness 1.2mm necessary stainless steel screws etc complete.		
8.133.1	75x19x13mm	each	22.00
8.133.2	60x19x13mm	each	21.50
8.133.3	50x15x10mm	each	20.00
8.134	Providing and fixing stainless steel narrow hinges having thickness 1.2mm necessary stainless steel screws etc complete.		
8.134.1	75x18x18mm	each	22.50
8.134.2	60x18x18mm	each	21.50

8.134.3	75x15x15mm	each	22.00
8.134.4	60x15x15mm	each	21.50
8.135	Providing and fixing stainless steel parliamentary hinges having thickness 2.5mm necessary stainless steel screws etc complete.		
8.135.1	150x100mm	each	134.00
8.135.2	125x100mm	each	119.00
8.135.3	100x100mm	each	103.00
8.135.4	75x100mm	each	89.50
8.136	Providing and fixing stainless steel piano hinges with necessary stainless steel screws etc complete.		
8.136.1	Overall width 35mm	each	138.00
8.136.2	Overall width 25 mm	each	123.00
8.137	Providing and fixing stainless steel sliding door bolts with 16mm rod, 2.5mm thick flap, necessary stainless steel nuts bolts and screws etc complete.		
8.137.1	300mm	each	238.00
8.137.2	250mm	each	228.00
8.138	Providing and fixing stainless steel door latch with 12mm rod, 2.5mm thick flap, necessary stainless steel screws etc complete.		
8.138.1	300mm	each	92.50
8.138.2	250mm	each	85.00
8.139	Providing and fixing stainless steel tower bolts (Barrel type) with necessary stainless steel screws etc complete.		
8.139.1	250 x10mm	each	97.00
8.139.2	200 x10mm	each	70.50
8.139.3	150 x10mm	each	57.50
8.139.4	100 x10mm	each	41.00
8.139.5	75 x10mm	each	36.00
8.140	Providing and fixing stainless steel door handles having flap thickness 2.5mm, necessary stainless steel screws etc complete.		
8.140.1	150 mm	each	24.50
8.140.2	125 mm	each	22.50
8.140.3	100 mm	each	22.00
8.141	Providing and fixing Stainless steel "D" shape door handles made of 10mm dia rod with necessary stainless steel screws etc complete.		
8.141.1	200 mm	each	64.00
8.141.2	150 mm	each	49.50
8.141.3	125 mm	each	42.00
8.141.4	100 mm	each	35.00
8.141.5	75 mm	each	27.50
8.142	Providing and fixing stainless steel hooks and eyes with 5.6mm dia rod with necessary stainless steel screws etc complete.		
8.142.1	200 mm	each	27.00
8.142.2	150 mm	each	25.50
8.142.3	125 mm	each	23.50
8.142.4	100 mm	each	22.00
8.143	Providing and fixing stainless steel hanging door stopper with necessary stainless steel screws complete.		

8.143.1	Single	each	47.00
8.143.2	Double	each	65.00
8.144	Providing and fixing stainless steel fixed stopper with necessary stainless steel screws complete.		
8.144.1	100 mm long	each	96.50
8.144.2	75 mm long	each	81.00
8.144.3	60 mm long	each	73.50
8.144.4	50 mm long	each	65.00
8.145	Providing and fixing magnetic catcher in cupboard / ward robe shutters including fixing with necessary screws etc. complete.		
8.145.1	Triple strip vertical type.	each	21.00
8.145.2	Double strip (horizontal type).	each	16.50
8.146	Providing and fixing powder coated telescopic drawer channels with necessary screws etc. complete as per directions of Engineer-in-charge.		
8.146.1	300 mm long	pair	180.00
8.146.2	400 mm long	pair	237.00
8.146.3	500 mm long	pair	295.00
8.147	Providing and fixing sliding arrangement in racks/ cupboards/ cabinets shutter by P/F stainless steel rollers to run inside C or E aluminium channel section (The payment of C or E channel shall be made separately)	each	14.50
8.148	Providing and fixing factory made UPVC door frame made of UPVC profile section having an overall dimension as below (tolerance ± 1 mm) with wall thickness $2.0\text{mm} \pm 0.2\text{mm}$, corners of the door frame to be jointed with galvanized brackets and stainless steel screws, joints mitred and plastic welded. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 X 19mm and $1\text{mm} \pm 0.1\text{mm}$ wall thickness and 3 nos. stainless steel hinges fixed to the frame complete as per manufacturers specification and direction of Engineer-in-charge		
8.148.1	Extruded section Profile size 48x40 mm.	metre	191.00
8.148.2	Extruded section Profile size 42x50 mm.	metre	196.00
8.149	Providing and fixing factory made PVC door shutters of specified thickness made of styles and rails of a UPVC hollow section of specified size 59x24 mm and wall thickness $2\text{ mm} \pm 0.2\text{ mm}$ with inbuilt edging on both sides. The styles and rails mitred and joined at the corners by means of M.S. galvanised/ plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws.		
8.149.1	24 mm thick door shutters with styles and rails of size 59x24 mm	sqm	2,399.00
8.149.2	30 mm thick door shutters with styles and rails of size 60x30 mm	sqm	2,488.00

8.150	Providing and fixing factory made 25mm thick PVC flush door shutters made out of a one piece Multi chamber extruded PVC section of the size of 762mm X 25mm or less as per requirement with an average wall thickness of 1mm ± 0.3mm. PVC foam end cap of size 23x10mm are provided on both vertical edges to ensure the overall thickness of 25mm. An M.S. tube having dimensions 19mm x 19mm is inserted along the hinge side of the door. Core of the door shutter should be filled with High Density Polyurethane foam. The Top & Bottom edges of the shutter are covered with an end-cap of the size 25mm X 11mm. Door shutter shall be reinforced with special polymeric reinforcements as per manufactures' specification.	sqm	2,583.00
8.151	Providing and fixing factory made P.V.C. door frame of size 50x47mm with a wall thickness of 5mm, made out of extruded 5mm rigid PVC foam sheet mitred at corners and joined with 2 Nos of 150mm long brackets of 15x15mm M.S. square tube, the vertical door profiles to be reinforced with 19x19mm M.S. square tube of 19 gauge, EPDM rubber gasket weather seal to be provided through out the frame. The door frame to be fixed to the wall using M.S. screws of 65/100mm size complete as per manufacturers specification and direction of Engineer-in-Charge.	metre	346.00
8.152	Providing and fixing 30mm thick factory made panel PVC door shutter consisting of frame made out of M.S. tubes of 19 gauge thickness and size of 19mm x 19mm for styles and 15x15mm for top & bottom rails. M.S. frame shall have a coat of steel primers of approved make and manufacture. M.S. frame covered with 5mm thick heat moulded PVC 'C' channel of size 30mm thickness, 70mm width out of which 50mm shall be flat and 20mm shall be tapered in 45degree angle on either side forming styles; and 5mm thick, 95mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered in 45 degree on the inner side to form top and bottom rail and 115mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered on both sides to form lock rail. Top, bottom and lock rails shall be provided either side of the panel. 10mm (5mm x 2) thick, 20mm wide cross PVC sheet be provided as gap insert for top rail & bottom rail. paneling of 5mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles & rails with 7mm (5mm+2mm) thick x 15mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5mm thick PVC strip of 20mm width is to be stuck on the interior side of the 'C' Channel using PVC solvent adhesive etc. complete as per Manufacturer's specification including 3 nos ISI marked stainless steel hinges of size 100x58x1.9 mm complete. (for W.C. and bathroom door shutter).		
8.152.1	PVC door shutter	sqm	2,318.00
8.152.2	Both side Pre-laminated panel PVC door shutter	sqm	2,832.00
8.153	Providing and fixing 30 mm thick Glass Fibre Reinforced Plastic (FRP) paneled door shutter of required colour and approved brand and manufacture, made with fire - retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, with wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, cast monolithically with 5 thick FRP laminate for panels confirming to IS: 14856 - 2000, complete.	sqm	2,112.00

8.154	Providing and fixing 30mm thick fibreglass reinforced plastic (F.R.P.) flush door shutter in different plain and wood finish made with fire retardant grade unsaturated polyester resin, moulded to 3mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF) / Polystyrene foam to be used as filler material throughout the hollow panel, casted monolithically with testing parameters of F.R.P. laminate conforming to table - 3 of IS: 14856 : 2000, complete.	sqm	2,595.00
8.155	Providing and fixing factory made Pre-laminated particle board flat pressed three layer or graded wood particle board shutter (25 mm thick) with one side decorative finish and other side balancing lamination conforming to IS: 12823 Grade I Type II, of approved design, and edges sealed with water resistant paint and lipped with aluminium 'U' type edge beading all-round the shutter, including fixing with angle cleat, grip strip, cadmium plated steel screws including fixing of stainless steel hinges 100x1.7mm etc complete as per direction of Engineer-in-Charge	sqm	3,483.00
8.156	Providing and fixing cupboard shutters 25mm thick, with Pre-laminated flat pressed with decorative lamination one side and other side balancing lamination exterior Grade - I MDF Board 25mm thick confirming to IS:14587 including IInd class teak wood lipping of 25mm wide x12 mm thick with necessary screws and bright finished stainless steel piano hinges complete as per direction of the Engineer-in-Charge.	sqm	1,789.00
8.157	Providing and fixing aluminum U beading of required size to Pre-laminated /flush door shutter including fixing etc. complete as per direction of Engineer-in-charge.	kg	510.00
8.158	Providing and fixing IS: 3564 marked aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc complete.	each	1,450.00
8.159	Providing and fixing IS: 3564 marked aluminium extruded section body tubular type universal hydraulic door closer with double speed adjustment with necessary accessories and screws etc complete.	each	1,053.00
8.160	Providing and fixing expandable fasteners of specified size with necessary plastic sleeves and galvanized M.S screws including drilling holes in masonry work /CC/ R.C.C by drilling machine and making good etc complete.		
8.160.1	25 mm long	each	15.00
8.160.2	32 mm long	each	21.00
8.160.3	40 mm long	each	27.50
8.160.4	50 mm long	each	30.00
8.161	Supplying and fixing teak wood fillets (10 mm x 10 mm size) including nails etc complete.	metre	27.00

8.162	Providing and fixing factory made Fibreglass Reinforced plastics (F.R.P.) chajja 4mm thick of required colour, size and design made by Resin Transfer Moulding (RTM) Machine Technology, resulting in void free compact laminate in single piece, having smooth gradual slope curvature for easy drainage of water and duly reinforced by 2nos. Vertically and 1nos. Horizontally 50x2mm thick M.S. flat with 12mm in built hole for grouting on the existing wall along with the 50mm flanges duly inserted and sealed in the wall complete in one single piece casted monolithically, including all necessary fittings . The FRP Chajja should be manufactured using unsaturated Polyester resin as per IS: 6746 duly reinforced with fibre glass chopped strand mat (CSM) as per IS: 11551 complete with protective Gel coat U/V coating on Top for complete resistance from the extreme of temperature, weather & sunlight.	sqm	5,072.00
9	STEEL AND ALUMINIUM WORK		
9.1	Structural steel work in single section including cutting, hoisting, fixing in position and applying a priming coat of red oxide zinc chromate primer.	kg	61.50
9.2	Structural steel work riveted or bolted or welded in built-up sections, trusses and frames work upto a height of 5m above plinth level, including cutting, hoisting, fixing in position and applying a priming coat of red oxide zinc chromate primer.	Kg	66.00
9.3	Steel work in tubular (round, square or rectangular hollow tubes etc.) structure in built-up sections, trusses and frame work including cutting, hoisting, fixing in position upto a height of 5m above plinth level, consisting of columns trusses, roof and bottom purlins, base plate, holding down bolts, wind ties bracing (if required), bolts, nuts and washers for fastening etc. complete with applying a priming coat of red oxide zinc chromate primer.		
9.3.1	Electric resistance or induction butt welded tubes Grade-250	kg	88.50
9.3.2	Electric resistance or induction butt welded tubes Grade-300	kg	93.50
9.4	Extra for curvature in making steel work in tubular structure in built-up sections, trusses and frame work	kg	2.30
9.5	Extra for hoisting trusses and placing in position over height above 5m for every 2.5 m height or part thereof.	kg	2.70
9.6	Steel work welded in built up sections/ framed work including cutting, hoisting, fixing in position and applying a priming coat of red oxide zinc chromate primer.		
9.6.1	In stringers, treads, landings etc. of stair cases including use of chequered plate wherever required, all complete.	Kg	70.00
9.6.2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	Kg	68.00
9.7	Providing and fixing M.S. round holding down bolts with nuts, washer and plate in cement concrete complete.	kg	71.50
9.8	Providing and fixing M.S. rivets of sizes in position	kg	91.50
9.9	Welding by gas plant.	cm	2.10
9.10	Welding by electric plant.	cm	1.70
9.11	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size with top and bottom rails of T-iron 40x40x6mm with 38mm steel pulleys complete with bolts, nuts, locking arrangement stoppers, handles including applying a priming coat of red oxide zinc chromate primer.	sqm	3,330.00
9.12	Providing and fixing sliding shutter with M.S. sheet 1mm thick, frame and diagonal braces of 40x40x6mm angle iron, 3.0 mm thick M.S. gusset plates at junctions and corners, 25mm dia pulley, 40x40x6mm angle and T-iron guide at top and bottom respectively including applying a priming coat of red oxide zinc chromate primer.	kg	71.50

9.13	Providing and fixing steel door/ window with M.S. sheet 1mm thick, frame of angle iron, diagonal braces of angle/ flat iron of suitable size, 3.00 mm M.S. gusset plates at junctions and corners, all necessary fittings complete including applying a priming coat of red oxide zinc chromate primer.	kg	75.00
9.14	Providing and fixing steel door made of angle iron of suitable sizes with M.S. grill of approved pattern made of M.S. flats or square or round bars coat of red oxide zinc chromate primer.	kg	79.50
9.15	Providing and fixing M.S. grill of approved pattern made of M.S. flats or square or round bars welded to steel frame of windows etc. including applying a priming coat welded to frame with all necessary fitting complete including applying a priming of red oxide zinc chromate primer.	kg	67.50
9.16	Providing and fixing M.S. frames of doors, windows, ventilators and cupboards joints mitred and welded with 15x3 mm lugs 10cm long embedded in cement concrete blocks 15x10x10cm of grade M-10 or with wooden plugs and screws or with dash fastener or rawl plugs and screws or with fixing clips or with bolts and nuts as required including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.		
9.16.1	“T” –iron frames	kg	74.00
9.16.2	Angle-iron frames	kg	73.50
9.16.3	MS tubular frames	kg	80.50
9.17	Providing and fixing factory made ISI marks steel doors, windows and ventilators side/ top/ centre hung made up of standard rolled steel section conforming to IS 1038:1968 (viz. F7D, F4B, K11 and K12B etc.), joints mitred and flash butt and sash bars tenoned and riveted/ welded with 10 cm long lugs of size 15x3mm embedded in cement concrete block 15x10x10 cms of 1:3:6 (1 cement :3 Coarse sand: 6 graded stone aggregate 20 mm nominal size) or rawl plugs and screws or with bolts and nuts as required including providing and fixing of hinges, pivots, handles, pegs, stays, rolling devices, locking arrangements, spring catch etc., as required complete including applying a priming coat of red oxide zinc chromate primer.	kg	88.00
9.18	Providing and fixing in position doors, windows and ventilators frames made of cold rolled pressed steel sheet framed profiles made from commercial M.S. Sheets conforming to I.S. 513 of 1973 and as per general specifications of I.S 4351 including hinges jamb, lock jamb, steel butt hinges, base tie, joints mitred and welded with 10cm long legs of size 15x3mm M.S. flat, embedded in cement concrete blocks 15x10x10cm size of grade M-10 or rawl plugs and screws or with fixing clips or with bolts and nuts including neatly compacted filling M-10 cement concrete in profile section applying a priming coat of red oxide zinc chromate primer.		
9.18.1	Single rebate/ mullion 80mmx50mm size, 1.25mm thick sheet	metre	361.00
9.18.2	Single rebate/ mullion 80mmx50mm size, 1.6mm thick sheet	metre	435.00
9.18.3	Single rebate/ mullion 100mmx50mm size, 1.25mm thick sheet.	metre	391.00
9.18.4	Single rebate/ mullion 100mmx50mm size, 1.6mm thick sheet.	metre	474.00
9.18.5	Double rebate 115mmx50mm size, 1.6mm thick sheet	metre	528.00

9.19	Providing and fixing in position door shutter made of square/ rectangular hollow steel tube of approved size joint mitred, welded frame with two Nos. intermediate rails, 200mm wide lock rail made of 1.6mm thick M.S. sheet welded to intermediate rail, M.S. grill of approved pattern made of M.S. flat or square or round bars welded to frames and provided M.S. butt hinges, all necessary fitting and finished by filling putty including applying a priming coat of red oxide zinc chromate primer all complete. (To be used in safety door shutters in buildings)	kg	93.50
9.20	Fixing standard steel doors, windows, and ventilators in walls with 10 cm long lugs of size 15x3mm embedded in cement concrete block 15x10x10cm size 1:3:6 (1 Cement : 3 Sand : 6 Stone aggregate 20 nominal size) or rawl plugs and screws or with bolts and nuts as required (steel windows with lugs shall be supplied by department).	sqm	10.00
9.21	Providing and fixing float glass panes with steel glazing clips and special metal sash putty of approved make in steel doors, windows, ventilators:		
9.21.1	4mm thick	sqm	535.00
9.21.2	5mm thick	sqm	631.00
9.21.3	6mm thick	sqm	727.00
9.22	Providing and fixing 3 mm fibre glass pane with steel glazing clips and special metal sash putty of approved make in steel doors, windows, ventilators.	sqm	678.00
9.23	Providing and fixing frosted glass panes with steel glazing clips and special metal sash putty of approved make in steel doors, windows, ventilators:		
9.23.1	4 mm thick	sqm	604.00
9.23.2	5 mm thick	sqm	717.00
9.23.3	6 mm thick	sqm	871.00
9.24	Providing and fixing tinted glass panes with steel glazing clips and special metal sash putty of approved make in steel doors, windows, ventilators:		
9.24.1	4 mm thick	sqm	642.00
9.24.2	5 mm thick	sqm	765.00
9.24.3	6 mm thick	sqm	923.00
9.25	Providing and fixing sun glass film over glazed doors windows & ventilators etc. complete	sqm	316.00
9.26	Extra for providing and fixing mild steel beading of size 15x3mm with screws instead of glazing clips and metal sash putty in steel doors, windows, ventilators and composite units.	metre	31.50
9.27	Supplying and fixing rolling shutter of approved makes made of M.S. laths interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and out side locking with push and pull arrangement complete but excluding the cost of top cover and spring.		
9.27.1	80x1.25mm M.S. Laths	sqm	1,691.00
9.27.2	80x1.20mm M.S. Laths	sqm	1,570.00
9.27.3	80x0.90mm M.S. Laths	sqm	1,485.00
9.28	Providing and fixing 27.5cm long wire spring for rolling shutters.	each	362.00
9.29	Providing and fixing M.S. sheet top cover for rolling shutter		
9.29.1	1.25mm thick	sqm	540.00

9.29.2	1.20mm thick	sqm	530.00
9.29.3	0.90mm thick	sqm	399.00
9.30	Providing and fixing ball bearing for rolling shutters.	each	423.00
9.31	Providing and fixing mechanical device chain and crank operation for operating rolling shutters.	set	5,672.00
9.32	Extra for providing grilled rolling shutter manufactured out of 8 mm dia. M.S. bar instead of laths as per approved design (area of grill provided, only to be measured).	sqm	327.00
9.33	Providing and fixing GI wire gauge of average width of aperture 1.56mm with wire of 0.45mm to existing steel door, window shutter frames with necessary M.S. strip beading etc. complete.	sqm	569.00
9.34	Providing and fixing stainless wire gauge of average width of aperture 1.56mm with wire of 0.35mm to existing steel door, window shutter frames with necessary M.S. strip beading etc. complete.	sqm	791.00
9.35	Providing and fixing approved pipe hand rail by welding to iron railing including applying a priming coat of red oxide zinc chromate primer.		
9.35.1	M.S Pipe	kg	80.50
9.35.2	E.R.W. pipe	kg	90.00
9.35.3	G.I. pipe	kg	93.00
9.36	Providing and fixing approved pipe hand rail to walls (ramps, stair cases) including cutting chases and repairing the same to original condition, applying a priming coat of red oxide zinc chromate primer.		
9.36.1	M.S Pipe	kg	71.00
9.36.2	E.R.W. pipe	kg	79.00
9.36.3	G.I. pipe	kg	84.50
9.37	Providing and fixing M.S. fan clamp/hook for ceiling fan made out of 16 mm dia M.S. bar bent to shape with hooked ends in R.C.C. slabs, beams during laying including painting the exposed portion of loop.	each	97.00
9.38	Providing and fixing broken glass 100 mm high in spacing not more than 40 mm both ways and laid in 50 mm thick (average) cement mortar 1:4 (1 cement : 4 coarse sand) over compound walls, parapet walls and the like.	sqm	268.00
9.39	Providing and fixing in position G.I. barbed wire (93.8gram/m) to concrete/ wooden/ angle iron posts (straight or diagonal) including securing and screwing with G.I. tying wire, G.I. staples, G.I.U-nails or steel pins etc., complete(Cost of posts, struts to be paid for separately)	metre	9.40
9.40	Providing and fixing concertina coil fencing with required dia 610 mm (having 50 nos. round per 6 metre length) up to 3m height of wall with existing angle iron 'Y' shaped placed 2.4 m or 3.00 m apart tied with G.I. staples and G.I. clips to retain horizontal including necessary bolts or G.I. barbed wire tied to angle iron all complete as per direction of Engineer-in-charge with reinforced barbed tape (R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	metre	164.00

9.41	Providing and fixing concertina fencing with reinforced barbed tape (R.B.T.) up to 3m height of wall with existing angle iron in any shape in one or more rows in horizontal/ vertical/inclined alignment tied with G.I. staples and G.I. clips including necessary bolts or G.I. barbed wire tied to angle iron all complete as per direction of Engineer-in-charge with reinforced barbed tape (R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)(RBT tape to be measured for each row)	metre	14.00
9.42	Providing and fixing in position welded steel wire fabric to concrete/ wooden/ angle iron posts including securing and screwing with G.I. tying wire, G.I. staples, G.I.U-nails or steel pins etc., complete		
9.42.1	Aperture 75x25mm	sqm	551.00
9.42.2	Aperture 50x25mm	sqm	569.00
9.42.3	Aperture 50x50mm	sqm	535.00
9.42.4	Aperture 75x75mm	sqm	500.00
9.42.5	Aperture 100x100mm	sqm	448.00
9.43	Providing and fixing in position chain linked steel wire fabric made of 4 mm dia G.I. wire of required width in mesh to concrete/ wooden/ angle iron posts including securing and screwing with 2mm dia G.I. wire, G.I. staples, G.I.U-nails or steel pins etc., complete.		
9.43.1	Aperture 50x50mm	sqm	331.00
9.43.2	Aperture 75x75mm	sqm	291.00
9.44	Providing and fixing "NETLON insect screens" with 25mm wide Hook and loop tape all around to wooden/ aluminium/ steel windows, ventilators and the like complete.	Sqm	278.00
9.45	Providing and placing in position angle iron post and strut of required size including bottom to be split and bent at right angle in opposite direction for required length and drilling holes upto 10 mm dia as per requirement including priming coat with red oxide zinc chromate primer and placing the post/ strut in cement concrete block.	Kg	69.50
9.46	Extra for powder coating (minimum 50 micron) on steel sections instead of red oxide zinc chromate primer	kg	24.50
9.47	Providing and fixing aluminium work for doors, windows, ventilators and partitions made out of extruded aluminium standard sections (main section with minimum 1.5mm thickness) conforming to IS: 733, IS: 1285 mitred and jointed mechanically including aluminium cleats, neoprene weather stripping gasket beveled edge beading, screws duly fixed in wall/ floor with fixing clips or hold fasteners or bolts and nuts as required aluminium sections shall be anodized transparent or dyed to approved shade according to IS: 1868, minimum anodic coating shall be of grade AC-15. (Glazing to be paid for separately:		24.50
9.47.1	For fixed portion	kg	331.00
9.47.2	For shutter of doors, windows & ventilators including providing and making provision for fixing wherever required including the cost of PVC/ neoprene gasket required (Fittings shall be paid for separately).	Kg	338.00
9.48	Extra for powder coated (minimum 50 micron) aluminium sections instead of anodized.	Kg	27.00
9.49	Extra for polyester powder coated (minimum 50 micron) aluminium sections instead of anodized.	Kg	34.50

9.50	Providing and fixing 12mm thick pre-laminated particle board flat pressed with decorative lamination and balancing lamination on specified sides exterior Grade – I MDF Board 12 mm thick conforming to IS:14587, including fixed in aluminium doors, windows shutters and partition frames with C.P. brass/ stainless steel screws etc. complete.		34.50
9.50.1	With decorative lamination on one side and balancing lamination on other side.	Sqm	845.00
9.50.2	With decorative lamination on both side	sqm	906.00
9.51	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete. (Cost of aluminium snap beading shall be paid in basic item):		
9.51.1	With float glass panes of 4 mm thickness	sqm	611.00
9.51.2	With float glass panes of 5 mm thickness	sqm	708.00
9.51.3	With float glass panes of 6 mm thickness	sqm	804.00
9.51.4	With float glass panes of 8 mm thickness	sqm	1,051.00
9.52	Providing and welding 1mm thick MS sheet on existing door/ window/ ventilator shutter frames including applying a coat of red oxide zinc cromate primer on both side.(MS strip if provided on periphery or as intermediate member shall be paid extra)	Sqm	585.00
9.53	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side having 12 mm air gap including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. complete.	sqm	3,159.00
9.54	Providing and fixing anodized aluminium framed grill (minimum anodic coating of grade AC 15)of of approved shape, pattern and design including cutting, bending, hoisting and erecting/ fixing to door, window frame or to wall with fixing clips or hold fasteners or bolts and nuts as required etc. complete.	kg	396.00
9.55	Providing and fixing of six/seven levers branded and approved mortise lock.	each	594.00
9.56	Providing and fixing of floor spring IS: marked (Everite, Door link or any equivalent make) with stainless steel cover plate	each	1,920.00
9.57	Providing stainless steel railing/ grill made of S.S. flats, hollow S.S. pipe or square/ rectangular sections of approved design fixing in stair case, balcony or other places with metal fasteners and stainless steel bolts etc complete.		
9.57.1	SS Grade 204	kg	467.00
9.57.2	SS Grade 304	kg	525.00
9.58	Extra for providing and fixing tinted glass panes in aluminium door, window, ventilator shutters and partitions instead of float glass.		
9.58.1	4 mm thickness	sqm	107.00
9.58.2	5 mm thickness	sqm	134.00
9.58.3	6 mm thickness	sqm	196.00
9.58.4	8 mm thickness	sqm	206.00
9.59	Extra for providing and fixing reflective glass panes in aluminium door, window, ventilator shutters and partitions instead of float glass.		
9.59.1	4 mm thickness	sqm	309.00
9.59.2	5 mm thickness	sqm	292.00

9.59.3	6 mm thickness	sqm	353.00
9.59.4	8 mm thickness	sqm	544.00
9.60	Designing, providing and fixing aluminium frame work made of special aluminium section on building face with M.S. angle iron brackets fixed on RCC structure with S.S. hold fasteners, including providing and fixing two sided structural adhesive tape of appropriate grade (NORTON or equivalent), on aluminium sections for fixing aluminium/ glass panel, sealing on periphery of frame work, by providing EPDM gasket, silicon weather sealant between aluminium frame and building structure including hire charges of double scaffolding complete.	kg	357.00
9.61	Providing and fixing aluminium composite panels in approved panel sizes, thickness and shape on aluminium frame work on face of building. (Frame to be paid separately)		
9.61.1	3mm thick	sqm	1,283.00
9.61.2	4mm thick	sqm	1,745.00
9.62	Providing and fixing laminated glass sheet of 8.76mm thickness in approved sizes on aluminium frame work on face of building. (Frame to be paid for separately).	sqm	2,613.00
10	ROOFING AND CEILING		
10.1	Providing corrugated G.I. sheet roofing including vertical/ curved surfaces fixed with galvanized iron, J or L hooks, bolts and nuts 8mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead including painting with primer and paint on overlapping of sheets complete excluding the cost of purlins rafters and trusses. (Zinc coating not less than 272 gms/sqm)		
10.1.1	1.00 mm thick sheet (weight 8.60 kg/m ²)	sqm	964.00
10.1.2	0.80 mm thick sheet (weight 7.03 kg/m ²)	sqm	810.00
10.1.3	0.63 mm thick sheet (weight 5.70 kg/m ²)	sqm	678.00
10.1.4	0.5 mm thick sheet (weight 4.30 kg/m ²)	sqm	540.00
10.2	Extra for straight cutting in C.G.I. sheet roofing for making opening of area exceeding 0.40 sqm for chimney stacks, sky light etc.		
10.2.1	1.00 mm thick sheet	sqm	23.00
10.2.2	0.80 mm thick sheet	sqm	21.50
10.2.3	0.63 mm thick sheet	sqm	18.50
10.2.4	0.50 mm thick sheet	sqm	15.50
10.3	Extra for racking or circular cutting in C.G.I. sheets roofing:		
10.3.1	1.00 mm thick sheet	sqm	138.00
10.3.2	0.80 mm thick sheet	sqm	136.00
10.3.3	0.63 mm thick sheet	sqm	134.00
10.3.4	0.50 mm thick sheet	sqm	108.00
10.4	Extra for making opening or recesses in C.G.I. sheets roofing of girth not more than 1 metre.		
10.4.1	Upto 100 sq.cm	each	26.50
10.4.2	Above 100 sq.cm. upto 400 sq.cm	each	46.50
10.4.3	Above 400 sq.cm. in area	each	74.00
10.5	Providing ridges or hips of 60cm overall width in plain G.I. sheet fixed with galvanized washers J or L hooks, bolts and nuts 8mm G.I. limpet and bitumen washers complete.		
10.5.1	1.00 mm thick sheet with zinc coating not less than 275gm/sqm	metre	596.00
10.5.2	0.80 mm thick sheet with zinc coating not less than 275 gm/sqm	metre	533.00

10.5.3	0.63 mm thick sheet with zinc coating not less than 275gm/sqm	metre	445.00
10.5.4	0.50 mm thick sheet with zinc coating not less than 275 gm/sqm	sqm	380.00
10.6	Providing valley of 90cm overall width in plain G.I. sheet 1.6 mm thick with zinc coating not less than 350gm/sqm fixed with galvanized iron J or L hooks, bolts and nuts 8 mm dia G.I. limpet and bitumen washers complete.	metre	1,053.00
10.7	Providing and flashing 38cm. over all width in plain G.I. sheet fixed, with galvanized iron J or L hooks bolts and nuts G.I. limpet washers and fixed in walls with cement mortar 1:3 (1 cement: 3 sand)		
10.7.1	G.I. plain sheet 1.25mm thick (weight 10.56 kg/m ²)	metre	420.00
10.7.2	G.I. plain sheet 1.00 mm thick (weight 8.60 kg/m ²)	metre	375.00
10.8	Providing and fixing flat iron brackets with bolts and nuts for holding G.I. sheet/ A.C. gutters.15 cm wide and 45 cm to 60cm over all semi circular portion.		
10.8.1	40x3mm	each	72.50
10.8.2	50x3 mm	each	84.00
10.9	Providing and fixing 15 cm. wide 45cm. overall semi circular plain G.I. sheet gutter with iron brackets 40x3 mm size, bolts, nuts and washers etc. including making necessary connections with rain water pipe complete as per designs.		
10.9.1	0.80 mm thick sheet	metre	424.00
10.9.2	0.63 mm thick sheet	metre	381.00
10.10	Extra for providing and fixing wind ties of 40x6mm flat iron section.	metre	118.00
10.11	Supply and fixing of pre-coated galvanized iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm +/- 5% total coated thickness (TCT), Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55mm) with EPDM seal or with polymer coated J or L hooks, bolts and nuts 8mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead complete upto any pitch in horizontal/ vertical or curved surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	sqm	636.00
10.12	Supply and fixing of polymer pre-coated galvalume profile sheets (PPGL) of approved size, shape and pitch of corrugation, total coated thickness (TCT) 0.60 mm +/- 5%, epoxy primer on both side of the sheet and colour polyester top coat 18-20 microns and 6-7 microns on bottom. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55mm) with EPDM seal or with polymer coated J or L hooks, bolts and nuts 8mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead complete upto any pitch in horizontal/ vertical or curved surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	sqm	693.00

10.13	Supply and fixing of pre-coated TILE PATTERN profile sheets of approved make, colour, over all size, corrugation shape and pitch, having total coated thickness (TCT) 0.45 mm (approx weight 4.9 kg/sqm) with Zn-Al coating and superior paint and having yield strength of 550 MPa. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55mm) with EPDM seal or with polymer coated J or L hooks, bolts and nuts 8mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead complete upto any pitch excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	sqm	942.00
10.14	Providing and fixing 2mm thick semi transparent polycarbonate profile roofing sheet of approved make and colour to make any normal roofing / covering and fixing as per manufacture specification at spacing not more than 1.2 m centre to centre with EPDM gasket and silicon sealant fixed with self drilling stainless steel screws all complete as per direction of Engineer-in-Charge.	sqm	1,900.00
10.15	Extra for working height above 6 metre for fixing GI/ profile/ PVC/ polycarbonate sheet for every additional height of 1 metre of part thereof.	sqm	4.70
10.16	Providing and fixing pre-coated galvanised steel sheet roofing accessories 0.50 mm +/- 5% total coated thickness (TCT), Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws or with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers complete :		
10.16.1	Ridges plain (500-600mm)	metre	552.00
10.16.2	Flashings/ Aprons. (Upto 600 mm)	metre	539.00
10.16.3	North light curves.	metre	576.00
10.16.4	Barge board (Upto 300 mm)	metre	486.00
10.16.5	Crimp curve	metre	624.00
10.16.6	Gutter. (600 mm over all girth).	metre	629.00
10.17	Providing asbestos cement 6mm thick corrugated or semi corrugated sheets roofing fixed with galvanized J or L hooks, bolts and nuts 8mm dia G.I. plain bitumen washers complete excluding the cost of purlins, rafters and trusses.	sqm	347.00
10.18	Extra for asbestos cement corrugated/semi corrugated sheet roofing with vertical sheeting or sheeting to pitch exceeding 60 degree.	sqm	51.00
10.19	Extra for straight cutting in asbestos cement corrugated/ semi corrugated sheet roofing for making opening of area exceeding 0.40 sqm. for chimney stacks, sky light etc.	metre	44.00
10.20	Extra for racking or circular cutting in A.C. corrugated/ semi corrugated sheet roofing.	metre	57.50
10.21	Extra for making opening or recesses in asbestos cement corrugated/ semi corrugated sheet roofing of girth not more than 1 metre:		
10.21.1	Not exceeding 100 sq.cm. in area	each	39.00
10.21.2	Exceeding 100 sq.cm but not exceeding 400 sq.cm in area	each	65.50
10.21.3	Exceeding 400 sq.cm. in area	each	93.00

10.22	Providing and fixing ridges and hips in asbestos cement sheet roofing with G.I., J or hooks, bolts and nuts 8 mm dia, G.I plain and bitumen washers complete.		
10.22.1	Plain angular ridges	metre	54.50
10.22.2	Serrated or plain wing adjustable ridges	metre	65.50
10.23	Providing and fixing asbestos cement roofing accessories with galvanized iron J or L hooks, bolts and nuts and/or G.I. seam bolts & nuts, G.I. plain & bitumen washers etc. complete.		
10.23.1	Apron flashing pieces	metre	73.00
10.23.2	Eaves filler pieces	metre	99.50
10.23.3	North light and ventilator curves	metre	106.00
10.23.4	Barge boards	metre	68.50
10.23.5	Ridge finials	pair	122.00
10.24	Providing & fixing UV stabilized fibreglass reinforced plastic (FRP) sheet roofing upto any pitch including fixing with polymer coated 'J' or 'L' hooks, bolts & nuts 8mm dia. G.I plain/bitumen washers complete but excluding the cost of purlins, rafters, trusses etc. The sheets shall be manufactured out of 2400 TEX panel rovings incorporating minimum 0.3% Ultra-violet stabiliser in resin system under approximately 2400 psi and hot cured. They shall be of uniform pigmentation and thickness without air pockets and shall conform to IS 10192 and IS 12866. The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified.		
10.24.1	2mm thick corrugated (2.5" or 4.2" or 6") or step-down (2" or 3" or 6") as specified.	sqm	766.00
10.24.2	2 mm thick flat	sqm	705.00
10.25	Providing and fixing corrugated fibre glass sheet roofing in any shade/ colour fixed with G.I. 'J' hooks, bolts, nuts and washers etc. complete but excluding cost of purlins, rafters, trusses etc. with:		
10.25.1	1.50mm thick fibre glass sheet	sqm	484.00
10.25.2	2.00mm thick fibre glass sheet	sqm	610.00
10.25.3	3.00mm thick fibre glass sheet	sqm	879.00
10.26	Providing and fixing plain fibre glass sheet roofing in any shade/ colour fixed with G.I. 'J' hooks, bolts, nuts and washers etc. complete but excluding cost of purlins, rafters, trusses etc. with:		
10.26.1	1.50mm thick fibre glass sheet	sqm	444.00
10.26.2	2.00mm thick fibre glass sheet	sqm	563.00
10.26.3	3.00mm thick fibre glass sheet	sqm	800.00
10.27	Providing and fixing plain sheets ceiling with nails to the frame work for panels excluding frame work.		
10.27.1	4 mm thick A.C. plain sheets	sqm	311.00
10.27.2	6 mm thick A.C. plain sheets	sqm	349.00

10.28	Providing and fixing semi transparent polycarbonate compact sheet roofing of approved colour to make any normal shape of roofing / covering of any pitch and fixing with specially designed powder coated aluminium section with 60mm wide flange of standard design weighing not less than 1.1 kg/ m at spacing not more than 1.2 m centre to centre with EPDM gasket and silicon sealant on all four edges of aluminium section fixed with self drilling stainless steel screws all complete including aluminium edge angle 40 mm x 40 mm x3mm as per manufacture specification and as per direction of Engineer-in-Charge.		
10.28.1	6 mm thick twin wall	sqm	1,395.00
10.28.2	10 mm thick twin wall	sqm	1,774.00
10.28.3	10 mm thick triple wall	sqm	1,963.00
10.29	Providing and fixing 20mm thick wooden planks ceiling (frame work for base to be paid separately) with M.S. screws.		
10.29.1	With teak wood.	sqm	2,148.00
10.29.2	With other than teak wood (Sal, bija, Haldu)	sqm	1,251.00
10.30	Providing and fixing 12 mm thick insulating board ceiling of approved quality with necessary nails etc., complete (Frame work to be paid separately).		
10.30.1	Natural colour insulating board	sqm	125.00
10.30.2	White face insulating board	sqm	422.00
10.30.3	Flame retardant face insulating board	sqm	381.00
10.31	Providing and fixing 18mm thick insulating board ceiling of approved quality with necessary nails etc., complete (Frame work to be paid separately).		
10.31.1	Natural colour insulating board	sqm	403.00
10.31.2	White face insulating board	sqm	488.00
10.31.3	Flame retardant face insulating board	sqm	447.00
10.32	Providing and fixing 3 mm thick hard board sheet ceiling of approved quality with necessary nails etc., complete (Frame work to be paid separately).		
10.32.1	Standard Quality Board.	sqm	242.00
10.32.2	Design boards.	sqm	304.00
10.33	Providing and fixing 4.5mm thick hard board sheet ceiling of approved quality with necessary nails etc., complete (Frame work to be paid separately).		
10.33.1	Standard Quality Board.	sqm	265.00
10.33.2	Design boards.	sqm	344.00
10.34	Extra for circular cutting in ceiling with.		
10.34.1	Teak wood planks 20 mm thick	metre	28.50
10.34.2	Other than teak wood (Sal, Bija, Haldu)	metre	33.00
10.34.3	Insulating board 12 mm thick	metre	20.00
10.34.4	Insulating board 18 mm thick	metre	24.00
10.34.5	Hard board 3 mm thick	metre	13.00
10.34.6	Hard board 4.5 mm thick	metre	15.50
10.35	Providing and fixing square edges wooden beading 65x12mm section with screws of approved quality for ceiling.		
10.35.1	With teak wood	metre	112.00
10.35.2	With other than teak wood (Sal, Bija, Haldu)	metre	75.00

10.36	Extra for making chamfered edges of beading.	metre	6.00
10.37	Extra for providing and fixing ceiling to curved surface in narrow width	sqm	91.50
10.38	Providing and laying split (half cut) 25mm dia bamboo jaffree 150mm mesh including tying to the purlins and rafters with moonj ban or string complete.	sqm	135.00
10.39	Providing and laying non-modular brick tiles of class designation 3.5 over mumty roofs grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat .	sqm	249.00
10.40	Painting top of roofs with bitumen of approved quality @ 17kg/10Sqm, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete.	sqm	94.50
10.41	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10mm and down grade) including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :	metre	68.00
10.42	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1mx1mx650 micron thick (0.65mm), finished with 12mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complete.	each	205.00
10.43	Providing and laying single wheel tilling without batten.	sqm	341.00
10.44	Providing and laying single wheel tiling over and including half split (splitted into 2 pieces) bamboo batten 50 to 70 mm at a distance of 200mm both side.	sqm	865.00
10.45	Providing and laying single wheel tiling over and including whole bamboo batten 50 to 70 mm at a distance of 200mm both side.	sqm	997.00
10.46	Providing and laying Manglore pattern tiles 20 mm thick (without hip or ridge tiles) on steel/ wooden frame (frame work to be paid separately)	sqm	592.00
10.47	Providing and laying Manglore pattern hips and ridge tiles fixed in cement mortar 1:6 etc. complete	metre	130.00
10.48	Providing and fixing Terracota tiles of approved design and size over and including 20mm thick cement plaster 1:3 including floating coat of cement slurry on bed and filling joints with neat cement slurry mixed with pigment to match the shade of tiles complete.	sqm	526.00
10.49	Providing and fixing ISI Marked designer tiles of approved design and size confirming to IS: 13801 over and including 20mm thick cement plaster 1:3 including floating coat of cement slurry on bed and filling joints with neat cement slurry mixed with pigment to match the shade of tiles complete.	sqm	1,002.00
10.50	Providing and fixing 100 mm diameter and 60 cm long stone ware rain water spout in cement mortar 1:4 (1 cement : 4 fine sand)	each	61.50
10.51	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 150mm diameter and weighing not less than 440 grams.	each	57.00
10.52	Providing and fixing false ceiling on existing frame work with ceiling tiles.		
10.52.1	12mm thick unveneered Nova teak or equivalent super plain tiles	sqm	500.00
10.52.2	12 mm thick half random perorated tiles Perforated area 5%	sqm	442.00
10.52.3	12 mm thick half random perorated tiles perforated area 13%	sqm	479.00

10.52.4	12.5 mm thick Glass fibre reinforced Gypsum board.	sqm	297.00
10.53	Providing 10mm thick plaster of paris (Gypsum anhydrous) ceiling height of 5m. above floor level over strips (Sal, Bija, Haldu) 25x6mm with 10mm gap in between and reinforced with rabbit wire mesh fixed into wooden frame (Frame work to be paid separately)		
10.53.1	Flat surface	sqm	849.00
10.53.2	Curved surface	sqm	895.00
10.54	Extra for sunk or raised mouldings in the Gypsum board/ plaster of paris false ceiling.	sqm	185.00
10.55	Extra for providing plaster of paris (Gypsum and anhydrous) with ceiling above 5 m height from floor level.	sqm	52.00
10.56	Providing and fixing 12mm thick plaster of paris (Gypsum Anhydrous) with ceiling upto a height of 5 M. above floor level over wooden frame and rendering smooth with plaster of paris (Frame work to be paid separately).	sqm	191.00
10.57	Extra for providing and fixing ceiling to curved surfaces in narrow width.	metre	91.50
10.58	Extra for providing 3 mm thick translucent white acrylic plastic sheets of approved quality in false ceiling instead of 12 mm thick plain/or with design particle board ceiling tiles in item above.	sqm	457.00
10.59	Providing and fixing steel frame work for partition wall made from steel rectangular tube of 50x25mmx1.25mm (wall thickness) with welded joints complete with grinding the welded joints. The members of the frame work along the wall/floor/ceiling shall form a grid of not more than 1100mmx1100mm centre to centre of member in any direction and are to be screwed using 75x10 mm wood screws to the prefixed wooden plugs at an interval of not more than 500mm centre to center. The vertical members to be grouted in the floor upto 50mm deep including repairing of wall/floor/ceiling with 1:3 Cement mortar.	kg	94.00
10.60	Providing and fixing steel grid for false ceiling made from M.S. rectangular hollow tubes of 50x25x1.25mm (wall thickness) as main runners to be jointed to cross runners of same size by electric arc welding with spacing not exceeding 610x610mm in any direction. The frame to be screwed to the wall using wooden plugs and wood screws of size 50x8mm at an interval of not more than 300mm centre to centre. The grid to be supported using 6mm M.S. hanger bars at 1200mm centre to centre both ways bent, hooked, fixed to existing R.C.C. roof with fastner or to the truss as the case may be and bolted to the grid with the help of suitable M.S. holding cleats, complete.	kg	101.00

10.61	<p>Providing and fixing at all height false ceiling consisting of frame work "W" / "U" / "L" sections made of G.I. sheet with zinc coating of grade 120 consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm dia x 40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick button wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm dia x 230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.55mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed including providing and fixing 12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part-I all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting.</p>	sqm	658.00
10.62	<p>Providing and fixing Gypsum board wall paneling consisting of frame work "W" / "U" / "L" sections made of G.I. sheet with zinc coating of grade 120 consisting of G.I. section, 'W' profile (0.55mm thick) having a knurled web of 51.55mm and two flanges of 26mm each with lips of 10.5 mm placed at 610mm center to center in perimeter channel having one flange of 20mm and another flange of 30mm with thickness of 0.55mm and web of length 27mm fixed on the floor and the ceiling with the nylon sleeves with fully threaded self-tapping drive all screws, and 12.5mm Gypsum board conforming to IS: 2095 - 1996: Part - I, fixed to 'W' profile with 25 mm countersunk ribbed head screws at 200mm center to center, joints of the boards are finished with specially formulated jointing compound and 48mm wide fibre tape to provide seamless finish all complete as per the drawing & directions of Engineer-in-charge.</p>	sqm	555.00
10.63	<p>Providing and fixing 97mm thick Gypsum board partition upto ceiling height consisting of frame work "W" / "U" / "L" sections made of G.I. sheet with zinc coating of grade 120, consisting of floor and ceiling channel 50mm wide having equal flanges of 32mm and 0.55mm thick fixed to the floor and ceiling at the spacing of 610mm centre to centre with dash fastener of 12.5mm diameter 40mm length and the studs 48mm wide having one flange of 34mm and other flange 36mm and 0.55mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610mm centre to centre by 6mm dia bolts and nuts at both ends of partition fixed flush to wall with rawl plugs at spacing of 450mm centre to centre and fixing of boards to either side of frame work by 25mm dry wall screws on studs, floor and ceiling channels at the spacing of 300mm centre to center and 97mm thick Gypsum board which includes one layer of tapered edge 12.5mm thick Gypsum plaster board (conforming I.S. 2095-1982) screw fixed with 25mm screws at 300mm centre to centre to either side, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, joint finisher and two coats of primer suitable for board as per manufacture's specification and Direction of Engineer-in-charge all complete.</p>	sqm	758.00

10.64	<p>Providing and fixing of aluminium panel false ceiling of approved colour consisting of panels 300mm wide x 30 mm deep x 0.7mm thick with bevel edge and length up to 6.0 metre. The panels are made from corrosion resistance aluminium alloy AA 3005 (Al. Mg) (for higher strength and good roll forming characteristics) sheet chromatised for maximum bond between metal and paint, enamel painted twice under high temperature, one side with a full primer and finish coat and the other side (inner side) with a primer coating and Skin Coat on a Continuous Paint Line.</p> <p>Panel shall be fixed by clipping to panel carrier of size 41.5mm wide x 62mm deep x 0.95mm thick in standard length of upto 5 metre made of doubled baked black enamelled aluminium alloy AA 5050 (Al. Mg) with cut outs to hold the 300mm wide panels fixed at a distance of 0.3 m from wall and 2.4 m from centre to center.</p> <p>Panel carrier shall be suspended by means of G.I. suspension rod 4mm dia and a Galvanised suspension spring clip at a distance of 1.7 m centre to center.</p> <p>Wall trim box of size 15x30x15mm made from 0.4mm thick aluminium alloy sheet to be provided all along the wall to hold panels</p> <p>(only surface area of false ceiling is to be measured and no deductions for lights, diffusers, columns etc shall be made)</p>		
10.64.1	With long Plain panels	sqm	4,405.00
10.64.2	With long perforated panels having perforation with 2.0mm dia and 5mm center to center and pasted with non woven tissue on the back side	sqm	4,805.00
10.65	<p>Providing and fixing of aluminium tile false ceiling comprising of Tile of size 600 x 600mm x 0.7mm. The Tile ends will be raised with pips and stops to ensure positive engagement into the spring to enable for de-mounting of individual panels. The Tile sides will be sufficiently high to ensure a minimum deflection across the length of Tile. All Tiles will be bevel edged. The Tile shall be powder coated. The Tile shall be clipped into clip-in profile made of 0.5mm thick G.I sheet. The clip-in profile shall be supported from slab by means hold on clamp with clip and 4mm dia G.I. rod fixed to ceiling rigidly. Wall trim box of size 15x30x15mm made from 0.4mm thick aluminium alloy sheet to be provided all along the wall to hold panels(only surface area of false ceiling is to be measured and no deductions for lights, diffusers, columns etc shall be made)</p>		
10.65.1	With Plain tiles	sqm	2,863.00
10.65.2	With perforated tiles having perforation with 2.5mm dia and 5mm center to center and pasted with non woven tissue on the back side	sqm	3,659.00
11	PLASTERING AND POINTING		
11.1	Providing and making 6mm thick cement plaster of mix:		
11.1.1	In Cement mortar 1:3 (1 cement : 3 fine sand)	sqm	93.00
11.1.2	In Cement mortar 1:4 (1 cement : 4 fine sand)	sqm	87.00
11.2	Providing and making 12mm thick cement plaster of mix:		
11.2.1	In cement Mortar 1:3 (1 cement : 3 fine sand)	sqm	115.00
11.2.2	In Cement Mortar 1:4 (1 cement : 4 fine sand)	sqm	103.00
11.2.3	In Cement Mortar 1:5 (1 cement : 5 fine sand)	sqm	96.50
11.2.4	In Cement Mortar 1:6 (1 cement : 6 fine sand)	sqm	91.50
11.3	Providing and making 15mm thick cement plaster on the rough side of single or half brick wall of mix:		
11.3.1	In cement Mortar 1:3 (1 cement : 3 fine sand)	sqm	134.00

11.3.2	In Cement Mortar 1:4 (1 cement : 4 fine sand)	sqm	120.00
11.3.3	In Cement Mortar 1:5 (1 cement : 5 fine sand)	sqm	113.00
11.3.4	In Cement Mortar 1:6 (1 cement : 6 fine sand)	sqm	107.00
11.4	Providing and making 20mm thick cement plaster on stone masonry of mix:		
11.4.1	In cement Mortar 1:3 (1 cement : 3 fine sand)	sqm	164.00
11.4.2	In Cement Mortar 1:4 (1 cement : 4 fine sand)	sqm	145.00
11.4.3	In Cement Mortar 1:5 (1 cement : 5 fine sand)	sqm	136.00
11.4.4	In Cement Mortar 1:6 (1 cement : 6 fine sand)	sqm	127.00
11.5	Neat Cement punning.	sqm	33.00
11.6	Providing and making 6mm thick cement plaster 1:3 (1 cement : 3 fine sand) finished with a floating coat of neat cement and a thick coat of lime wash on top of wall when dry for bearing of R.C.C. slab and beam.	sqm	105.00
11.7	Providing and making 18 mm thick cement plaster with under layer of 12mm thick cement plaster 1:5 (1 cement : 5 fine sand) finished with a top layer of 6mm thick cement plaster 1:3 (1 cement : 3 fine sand).	sqm	163.00
11.8	Providing and making 18mm thick cement plaster in two coats with under layer of 12mm thick plaster 1:5 (1 cement : 5 fine sand) and top layer of 6mm thick with cement plaster 1:3 (1 cement : 3 fine sand) finished rough with sponge.	sqm	167.00
11.9	Extra for providing and mixing water proofing materials in cement plaster work in proportion as recommended by manufacturer.	kg	43.50
11.10	Providing and mixing in cement mortar, triangular polyester fiber Recron 3s (Anti-shrinkage Admixture) of 6 mm length of approved make like Reliance industries Ltd etc. in proportion as recommended by manufacturer.	kg	366.00
11.11	Extra for plastering of exterior walls when height exceeds 10m above ground level for every additional height of 3.0m or part thereof.	sqm	22.50
11.12	Extra for plastering on circular work not exceeding 6.0 meters in radius.	sqm	8.90
11.13	Extra for plastering done on mouldings, cornices or architraves including neat finish to line and level.	sqm	134.00
11.14	Providing and making 18 mm terrazzo finish plastering rubbed and polished complete with under layer of 12mm thick cement plaster 1:3 (1 cement : 3 fine sand) and top layer of 6mm thick white or black or white and black marble chips of 3mm and down size laid in proportion of 4:7 (4 cement : 7 Marble chips) by volume.	sqm	497.00
11.15	Extra for 18 mm terrazzo finish plastering on circular work not exceeding 6m in radius.	sqm	27.50
11.16	Extra for using chocolate grey or yellow marble chips instead of white/black marble chip in top layer of terrazzo finish plaster.	sqm	7.60
11.17	Extra for using Baroda green marble chips instead of white/ black marble chip in top layer of terrazzo finish plaster.	sqm	7.60
11.18	Extra for using white cement instead of ordinary cement in top layer of terrazzo finish plaster.	sqm	40.00
11.19	Extra for adding red chocolate, orange or buff (Yellow) colour pigment in grey or white cement in top layer of terrazzo finish plaster.	sqm	11.00
11.20	Extra for adding blue or green colour pigment in grey or white cement in top layer of terrazzo finish plaster.	sqm	8.60
11.21	Extra for adding black colour pigment in grey or white cement in top layer of terrazzo finish plaster.	sqm	4.70

11.22	Providing and laying 27 mm thick washed stone grit plaster on exterior walls of height upto 10m above ground level in two layers, under layer 15mm thick plaster in cement mortar 1:4 (1 cement : 4 fine sand) furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 Kg of cement per sqm, top layer 12mm thick cement concrete 1:1 (1 Cement: 1 Marble stone chips by weight 10mm nominal size) in panels with groove (size 1cm. x1cm) all around as per approved pattern including scrubbing and washing the top layer with brushes and water to expose the stone chippings complete (Payment for providing grooves shall be made separately).	sqm	315.00
11.23	Extra for providing aluminium channels of size 15mmx10mmx1.5mm in place of sunk and band panels.	metre	67.00
11.24	Extra for using chocolate grey or yellow marble chips instead of white/black marble chip in top layer of grit finish plaster	sqm	19.00
11.25	Extra for using Baroda green marble chips instead of white/ black marble chip in top layer of grit finish plaster	sqm	19.00
11.26	Extra for using white cement instead of ordinary cement in top layer of grit finish plaster.	sqm	99.50
11.27	Extra for adding red, chocolate, orange or buff (yellow) colour pigment in grey or white cement in top layer of grit finish plaster.	sqm	72.50
11.28	Extra for adding blue or green colour pigment in grey or white cement in top layer of grit finish plaster.	sqm	56.00
11.29	Extra for adding black colour pigment in grey or white cement in top layer of grit finish plaster.	sqm	105.00
11.30	Extra for 27mm thick washed stone grit plaster for:		
11.30.1	Circular work not exceeding 6 m radius	sqm	30.00
11.30.2	Moulding cornices and cover.		
11.30.3	Straight cornices in their length	sqm	69.00
11.30.4	Curved cornices in their length	sqm	91.50
11.31	Providing and making 12mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand) per cm width:		
11.31.1	Flush bands	metre	2.10
11.31.2	Sunk Bands	metre	2.60
11.31.3	Raised Band	metre	3.00
11.32	Providing and making 18 mm thick plain cement mortar band in cement mortar 1:4 (1 cement : 4 fine sand) per cm width:		
11.32.1	Flush bands	metre	2.50
11.32.2	Sunk Bands	metre	3.00
11.32.3	Raised Band	metre	3.30
11.32.4	Drip course	metre	3.60
11.33	Providing and making moulded mortar band in cement mortar 1:4 (1 cement : 4 fine sand) per cm width:		
11.33.1	12 mm thick	metre	4.20
11.33.2	18 mm thick	metre	5.60
11.34	Providing and making 18 mm thick moulded cement mortar band in two coats under layer of 12mm thick with cement mortar 1:5 (1 cement : 5 fine sand) and top layer 6mm thick with cement mortar 1:4 (1 cement : 4 fine sand) per cm width:	metre	6.70

11.35	Providing and making 18 mm thick artificial red stone plaster consisting of 12mm thick under coat plaster 1:4 (1 cement : 4 fine sand) and 6mm thick finishing coat of cement mortar 1:1:3 (1 cement :1 marble dust: 3 stone dust) mixed with red oxide to match the shade of red stone.	sqm	231.00
11.36	Extra for lining over plaster to imitate stone or concrete block walling.	sqm	23.50
11.37	Providing and making pointing on brick work with cement Mortar 1:3 (1 cement : 3 fine sand)		
11.37.1	Flush pointing	sqm	27.00
11.37.2	Ruled pointing	sqm	33.50
11.37.3	Cut off weather struck pointing	sqm	42.00
11.37.4	Raised and cut pointing	sqm	59.50
11.38	Providing and making pointing on stone work with cement Mortar 1:3 (1 cement : 3 fine sand)		
11.38.1	Flush pointing	sqm	50.50
11.38.2	Ruled pointing	sqm	57.00
11.38.3	Raised and cut pointing	sqm	106.00
11.39	Providing and making raised and cut pointing on stone work in white cement mortar 1:3 (1 White cement :3 Marble dust).	sqm	180.00
11.40	Making grove in cement plaster while plastering upto 10 mm deep and 10 mm wide.	metre	1.30
11.41	Providing and fixing chicken mesh weighting not less than 250 gms/ sqm as per IS : specification in the required width with 40mm long steel nails on vertical and horizontal surface near R.C.C. and brick walls junctions including scaffolding and all lead and lifts etc. complete before plastering upto 10mts in height.	sqm	86.00
11.42	Providing sand faced plaster to concrete or brick masonry surface in all positions in two coats, base coat 13mm thick in C.M. 1:4, cleaning the surface by combing it and finishing coat 8mm thick in C.M. 1:3 and taking out grains on surface by hand operated mechanical arrangement with cost of all material labour, all leads & lifts, and scaffolding etc. complete.	sqm	180.00
12	FLOORING		
12.1	Applying cement slurry on R.C.C. slab or cement concrete work using 2.75 kg/ sqm for receiving cement concrete floor including roughening cleaning etc complete.	sqm	34.00
12.2	25mm thick cement concrete flooring with 1:2:4 cement concrete (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) finished with floating cost of neat cement.	sqm	165.00
12.3	Cement concrete flooring with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm) finished with a floating coat of neat cement.		
12.3.1	40 mm thick	sqm	222.00
12.3.2	50 mm thick	sqm	254.00
12.3.3	75 mm thick	sqm	345.00
12.4	52 mm thick cement concrete flooring with under layer of 40mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer of 12 mm thick cement metallic hardener concrete mix 1:2 (1 cement hardener mix : 2 stone aggregate of 6 mm size by volume) with metallic hardening compound of approved quality mixed with cement in ratio of 4:1 (4 cement : 1 metallic floor hardening compound by weight) including finishing etc. complete.	sqm	441.00

12.5	Extra for making chequers of approved pattern on cement concrete flooring, landing, pavement etc.	sqm	16.00
12.6	Cement plaster skirting upto 30 cm. height with cement mortar 1:3 (1 cement : 3 fine sand) finished with a floating coat of neat cement including rounding of junction with floor.		
12.6.1	18 mm thick in two layers of 12mm and 6mm	sqm	200.00
12.6.2	21 mm thick in two layers of 15mm and 6mm	sqm	218.00
12.7	Providing and fixing ceramic glazed wall tiles conforming to IS : 15622 of approved make, colours, shades and size on wall 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 matching pigment complete.		
12.7.1	Size upto 200x300mm	sqm	587.00
12.7.2	Size above 200x300mm	sqm	646.00
12.8	Providing and fixing plain cement concrete fibre reinforced heavy duty designer glazed floor tiles with uniform colour (for coloured tiles) and texture conforming to IS: 1237 (for abrasion wear) and IS : 516 (for compressive strength) of approved make, colours, shades and size on cement Mortar bed and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with matching pigment complete.		
12.8.1	On wall and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand)	sqm	921.00
12.8.2	On floor, steps and risers over 20mm thick bed of cement Mortar 1:4 (1 cement : 4 coarse sand)	sqm	905.00
12.9	Providing and laying ceramic glazed floor tiles conforming to IS : 15622 of approved size, make, colour, shade laid on 20 mm thick Cement Mortar 1:4 (1 cement : 4 coarse sand) including pointing the joints with white cement mixed with matching pigment etc., complete.		
12.9.1	Size 300x300mm	sqm	692.00
12.9.2	Size above 300x300mm	sqm	728.00
12.10	Providing and laying rectified ceramic glazed floor tiles of size 300x300mm and above conforming to IS : 15622 of approved make, colour, shade laid on 20 mm thick Cement Mortar 1:4 (1 cement : 4 coarse sand) including pointing the joints with white cement mixed with matching pigment etc., complete.		
12.10.1	Size 300x300mm	sqm	858.00
12.10.2	Size above 300x300mm	sqm	905.00
12.11	Providing and laying porcelain floor tiles of size 600x600mm with water absorption's less than 0.5% and conforming to IS : 15622 of approved make , laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc. complete.	sqm	710.00
12.12	Providing and laying vitrified floor tiles with soluble salt printing, of size 600x600mm with water absorption less than 0.5% and conforming to IS : 15622 of approved make, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc. complete.	sqm	963.00

12.13	Providing and laying vitrified floor tiles with double charge/ multi charge printing with water absorption less than 0.5% and conforming to IS : 15622 of approved make in all colours and shades and size mentioned below (+/- 10mm), laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc. complete.		
12.13.1	Size 600x600mm	sqm	1,151.00
12.13.2	Size 800x800mm	sqm	1,346.00
12.13.3	Size 1000x1000mm	sqm	1,562.00
12.14	Extra for providing and laying vitrified floor tiles with 2-5mm groove in between the tiles including grouting the groove with water resistant epoxy compound or with white cement and approved pigments etc. complete.		
12.14.1	Size 600x600mm	sqm	54.00
12.14.2	Size 800x800mm	sqm	52.50
12.14.3	Size 1000x1000mm	sqm	51.50
12.15	Deduct for not using 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) bedding in laying of floor tiles.	sqm	240.00
12.16	Extra for fixing glazed/ Ceramic/ Vitrified floor tiles with cement based high polymer modified quick-set tile adhesive (Water based) conforming to IS: 15477 (Type 1) for interior applications, using 5kg. adhesive per sqm of tile area, in 3mm-6mm thickness in place of cement mortar.	sqm	191.00
12.17	Extra for fixing glazed/ Ceramic/ Vitrified floor tiles with cement based high polymer modified quick-set tile adhesive (Water based) conforming to IS: 15477 (Type 2) for interior/exterior applications, using 5kg adhesive per sqm of tile area, in 3mm-6mm thickness in place of cement mortar.	sqm	202.00
12.18	40mm thick marble chips flooring rubbed and polished to granolithic finish with under layer 34mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 12.5 mm nominal size) and top layer 6mm thick with white or black or white and black marble chips of size from 1mm to 4mm nominal size laid after mixing with cement marble powder in mix 3:1 (3 cement :1 marble powder by weight) in proportion of 4:7 (4 cement marble powder mix : 7 marble chips by volume)		
12.18.1	Dark shade pigments with ordinary cement	sqm	405.00
12.18.2	Light shade pigment with white cement	sqm	449.00
12.18.3	Medium shade pigment with approx. 50% white cement, 50% ordinary cement	sqm	405.00
12.18.4	White cement without any pigment	sqm	400.00
12.18.5	Ordinary cement without any pigment	sqm	364.00
12.19	40mm thick marble chips flooring rubbed and polished to granolithic finish with under layer 31mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 12.5 mm nominal size) and top layer 9mm thick with white or black or white and black marble chips of size from 4mm to 7mm nominal size laid after mixing with cement marble powder in mix 3:1 (3 cement :1 marble powder by weight) in proportion of 4:7 (4 cement marble powder mix : 7 marble chips by volume)		
12.19.1	Dark shade pigments with ordinary cement	sqm	449.00
12.19.2	Light shade pigment with white cement	sqm	488.00

12.19.3	Medium shade pigment with approx. 50% white cement, 50% ordinary cement	sqm	450.00
12.19.4	White cement without any pigment	sqm	448.00
12.19.5	Ordinary cement without any pigment	sqm	391.00
12.20	40mm thick marble chips flooring rubbed and polished to granolithic finish with under layer 28mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 12.5 mm nominal size) and top layer 12mm thick with white or black or white and black marble chips of size from 7mm to 10mm nominal size laid after mixing with cement marble powder in mix 3:1 (3 cement :1 marble powder by weight) in proportion of 4:7 (4 cement marble powder mix : 7 marble chips by volume)		
12.20.1	Dark shade pigments with ordinary cement	sqm	491.00
12.20.2	Light shade pigment with white cement	sqm	545.00
12.20.3	Medium shade pigment with approx. 50% white cement, 50% ordinary cement	sqm	492.00
12.20.4	White cement without any pigment	sqm	490.00
12.20.5	Ordinary cement without any pigment	sqm	409.00
12.21	Marble chips skirting (upto 30 cm height) rubbed and polished to granolithic finish with layer 6mm thick with white or black or white and black marble chips of size from smallest of 4mm nominal size laid after mixing with cement marble powder in mix 3:1 (3 cement :1 marble powder by weight) in proportion of 4:7 (4 cement marble powder mix ; 7 marble chips by volume)		
12.21.1	18mm thick with under layer of 12mm thick cement plaster 1:3 (1 cement : 3 fine sand)		
12.21.2	Dark shade pigments with ordinary cement	sqm	403.00
12.21.3	Light shade pigment with white cement	sqm	430.00
12.21.4	Medium shade pigment with approx. 50% white cement, 50% ordinary cement	sqm	403.00
12.21.5	White cement without any pigment	sqm	402.00
12.21.6	Ordinary cement without any pigment	sqm	362.00
12.21.7	21mm thick with under layer of 15mm thick cement plaster 1:3 (1 cement : 3 fine sand)		
12.21.8	Dark shade pigments with ordinary cement	sqm	413.00
12.21.9	Light shade pigment with white cement	sqm	441.00
12.21.10	Medium shade pigment with approx. 50% white cement, 50% ordinary cement	sqm	414.00
12.21.11	White cement without any pigment	sqm	413.00
12.21.12	Ordinary cement without any pigment	sqm	372.00
12.22	Crazy marble stone flooring including filling the gaps with white cement marble powder mixture (3 white cement : 1 marble powder) by weight mixed with approved light shade pigment further mixed with white or black or white and black marble chips of sizes from 1mm to 4mm nominal size) in volumetric proportion of 4:7 (4 cement marble powder mix : 7 marble chips) and under layer of 25mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) rubbing, polishing and cement slurry etc. complete.	sqm	462.00
12.23	Extra for providing and fixing metal strip in joints of Terrazo floor/ cement concrete floor or like.		
12.23.1	Aluminium strips	kg	325.00

12.23.2	Brass strips	kg	402.00
12.24	Extra for providing and fixing 4mm thick AC sheet strip in joints of cement concrete floor or like.	sqm	268.00
12.25	Extra for providing and fixing 4mm thick glass strip in joints of Terrazo floor/ cement concrete floor or like.		
12.25.1	30 mm wide	metre	14.50
12.25.2	40 mm wide	metre	18.00
12.25.3	60 mm wide	metre	25.00
12.26	Extra for using chocolate grey or yellow marble chips instead of white & black chips in marble chips flooring or skirting.		
12.26.1	In top 6mm thick layer	sqm	7.60
12.26.2	In top 9 mm thick layer	sqm	12.00
12.26.3	In top 12 mm thick layer	sqm	15.00
12.27	Extra for Terrazzo flooring laid as floor borders marginal and similar bands exceeding 7.5 cm but not exceeding 30 cm in width	sqm	13.50
12.28	Extra for laying terrazzo in narrow band not exceeding 7.5 cm. in width	metre	4.50
12.29	Extra for laying terrazzo flooring in staircase treads not exceeding 30cm in width including cost of forming nosing etc.	sqm	20.00
12.30	Extra for making moulded nosing in Terrazzo including returned moulded ends and angles to mouldings.	metre	40.50
12.31	Special surface finishing to treads and risers and the ends of concrete steps and the like including form work.	sqm	28.50
12.32	Precast Terrazzo tiles 22mm thick with graded white or black or white and black marble chips of size upto 6mm laid in floors, tread of steps and landing on 25mm thick bed of cement mortar 1:6 (1 cement : 6 coarse sand) jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and polishing complete with precast tiles of:		
12.32.1	Light shade using white cement	sqm	698.00
12.32.2	Medium shade using approximately. 50% white cement and 50% ordinary cement.	sqm	673.00
12.32.3	Dark shade using ordinary cement	sqm	629.00
12.33	Extra if Terrazo tiles are laid in treads or steps not exceeding 30 cm. in width	sqm	17.00
12.34	Precast Terrazzo tiles 22mm thick with marble chips of size upto 6mm in skirting and risers of steps and exceeding 30cm in height on 12mm thick cement plaster 1:3 (1 cement : 3 coarse sand) jointed with neat cement slurry including rubbing and polishing complete with tiles of.		
12.34.1	Light shade using white cement	sqm	708.00
12.34.2	Medium shade using approximately. 50% white cement and 50% ordinary cement.	sqm	682.00
12.34.3	Dark shade using ordinary cement	sqm	657.00
12.35	Extra if cut tiles other than half tiles are used in risers of steps skirting and dado.	sqm	27.00
12.36	Chequered terrazzo tiles 22 mm thick with graded marble chips of size upto 6mm in floors on 25mm thick bed of cement mortar 1:6 (1 cement : 6 coarse sand) jointed with neat cement slurry mixed with pigment to match the shade of tiles including grinding rubbing and polishing complete.		
12.36.1	Light shade using white cement	sqm	799.00

12.36.2	Medium shade using approximately. 50% white cement and 50% ordinary cement.	sqm	713.00
12.36.3	Dark shade using ordinary cement	sqm	669.00
12.37	Chequered precast cement concrete tiles 22mm thick in footpath & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tile including cleaning of joint etc complete on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :		
12.37.1	Light shade using white cement	sqm	640.00
12.37.2	Medium shade using approximately. 50% white cement and 50% ordinary cement.	sqm	591.00
12.37.3	Dark shade using ordinary cement	sqm	518.00
12.37.4	Ordinary cement without any pigment	sqm	514.00
12.38	15mm thick Marble stone slab flooring over 18mm (Average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including grinding rubbing and polishing etc. complete. (Area of slab should be 0.50 sqm and above)		
12.38.1	Makrana white second quality.	sqm	3,752.00
12.38.2	Raj Nagar plain.	sqm	1,728.00
12.38.3	Agaria White	sqm	2,442.00
12.38.4	Black Zebra.	sqm	1,497.00
12.38.5	Udaipur green marble	sqm	1,497.00
12.38.6	Pink plain marble.	sqm	1,763.00
12.38.7	Wonder marble.	sqm	2,729.00
12.38.8	Katni marble.	sqm	1,759.00
12.39	15mm thick Marble stone slab in, tread & risers of steps, skirting, dado, walls and pillars on 12mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) and jointed with grey cement slurry including matching pigment, rubbing and polishing etc. complete. (single stone is to be used for risers and treads of steps and width of stone for skirting and dado shall be equal to the height of skirting & dado and length of 1.0 M).		
12.39.1	Makrana white second quality.	sqm	3,830.00
12.39.2	Raj Nagar plain.	sqm	1,806.00
12.39.3	Agaria White	sqm	2,520.00
12.39.4	Black Zebra.	sqm	1,576.00
12.39.5	Udaipur green marble	sqm	1,576.00
12.39.6	Pink plain marble.	sqm	1,841.00
12.39.7	Wonder marble.	sqm	2,807.00
12.39.8	Katni marble.	sqm	1,838.00
12.40	15mm thick Marble stone tile flooring over 18mm (Average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including grinding rubbing and polishing etc. complete. (Area of tile should be 0.18 sqm and above)		
12.40.1	Makrana white second quality.	sqm	1,875.00
12.40.2	Raj Nagar plain.	sqm	965.00
12.40.3	Agaria White	sqm	1,269.00
12.40.4	Black Zebra.	sqm	1,033.00
12.40.5	Udaipur green marble	sqm	851.00

12.40.6	Pink plain marble.	sqm	973.00
12.41	15mm thick Marble tiles in risers and treads of steps skirting dado and pillars laid on 12mm (Average) thick base of cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry including rubbing and polishing etc. complete (Area of tiles to be upto 0.18 sqm)		
12.41.1	Makrana white second quality.	sqm	1,953.00
12.41.2	Raj Nagar plain.	sqm	1,044.00
12.41.3	Agaria White	sqm	1,347.00
12.41.4	Black Zebra.	sqm	1,111.00
12.41.5	Udaipur green marble	sqm	929.00
12.41.6	Pink plain marble.	sqm	1,051.00
12.42	Extra for using white cement slurry instead of grey cement slurry in joints of marble stone flooring or tiles for all thickness	sqm	12.00
12.43	Extra for nosing in marble stone for treads.	metre	81.00
12.44	Extra for nosing in Granite stone for treads.	metre	126.00
12.45	15 mm thick Table rubbed polished Granite stone slab flooring laid over 20mm (Average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing etc. complete. (Area of slab should be 0.50 sqm and above)		
12.45.1	Granite stone grey/pink	sqm	1,796.00
12.45.2	Granite stone black	sqm	2,646.00
12.45.3	Granite stone lakha red/ shahi red	sqm	4,200.00
12.46	15 mm thick Table rubbed polished Granite stone slab in risers and treads of steps skirting dado and pillars laid on 12mm (Average) thick base of cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry including rubbing and polishing etc. complete (single stone is to be used for risers and treads of steps and width of stone for skirting and dado shall be equal to the height of skirting & dado and length of 1.0 m).		
12.46.1	Granite stone grey/pink	sqm	1,869.00
12.46.2	Granite stone black	sqm	2,719.00
12.46.3	Granite stone lakha red/ shahi red	sqm	4,273.00
12.47	8 mm thick Table rubbed polished Granite stone tile flooring laid over 20mm (Average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing etc. complete.		
12.47.1	Granite stone grey/pink	sqm	947.00
12.47.2	Granite stone black	sqm	1,329.00
12.47.3	Granite stone lakha red/ shahi red	sqm	2,038.00
12.48	8 mm thick Table rubbed polished Granite stone tile in risers and treads of steps skirting dado and pillars laid on 12mm (Average) thick base of cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry including rubbing and polishing etc. complete.		
12.48.1	Granite stone grey/pink	sqm	1,019.00
12.48.2	Granite stone black	sqm	1,402.00
12.48.3	Granite stone lakha red/ shahi red	sqm	2,111.00

12.49	25 mm thick KOTA stone slab flooring over 20mm (Average) thick base of cement mortar 1:4 laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including grinding rubbing and polishing etc. complete (Area of slab to be over 0.20 sqm and upto 0.50 sqm)	sqm	897.00
12.50	KOTA stone slab 25mm thick in risers and treads of steps, skirting dado and pillar laid in 12mm (Average) thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete. (single stone is to be used for riser and treads of steps and the width of stone for skirting and dado shall be equal to the height of skirting/ dado up to length of 1.0 M.)	sqm	990.00
12.51	Extra for nosing in steps and treads of Kota stone slab.	metre	69.50
12.52	Extra for nosing in steps and treads of red or white rough dressed sand stone.	metre	35.50
12.53	Extra for nosing in steps and treads of red or white fine dressed sand stone.	metre	94.00
12.54	Extra for nosing in steps and treads of red or white fine dressed and rubbed sand stone.	metre	118.00
12.55	Extra for necessary grinding and polishing to get mirror finish on KOTA/ Marble Stone flooring/ steps/ treads instead of normal grinding and polishing.	sqm	263.00
12.56	25mm thick Local RAJIM/ Red Flag stone slab flooring laid over 20mm (Average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid over & jointed with grey cement slurry mixed with pigments to match the shade of the stone i/c grinding, rubbing and polishing.	sqm	516.00
12.57	25mm thick Local RAJIM/ Red Flag stone slab in riser of steps, skirting, dado and pillars laid on 12mm (Average) thick cement mortar 1:4 (1 cement : 4 coarse sand) and joint with grey cement slurry mixed with pigments to match the shade of the slab i/c grinding, rubbing and polishing.	sqm	595.00
12.58	25mm thick un-polished Local RAJIM/ Red Flag stone slab flooring laid over 20mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid over & jointed with grey cement slurry mixed with pigments to match the shade of the stone.	sqm	428.00
12.59	Providing and fixing un-polished 45mm to 50mm thick RAJIM SAND STONE in floors laid on sand bed of average thickness 50mm and pointing with cement mortar 1:3 (1 cement : 3 coarse sand) including finishing complete.	sqm	280.00
12.60	Providing and fixing 20mm thick Jaisalmer stone flooring in any pattern over & including 20mm thick cement mortar bedding in CM 1:6 including cement float and filling joints with white neat cement slurry mixed with pigment to match the shade of stone with all wastage of all material including grinding, finishing, polishing and cleaning etc. complete (Edges and joints of stone are cut neatly so that thickness of joints to be not more than 1.50mm) and i/c cost of all materials, labour and running & hire charges of all machineries required for the work at all heights.	sqm	826.00
12.61	Providing and fixing 20mm thick Jaisalmer stone in skirting, coping, dado tread & risers of steps both sides machine cut over and including 12mm thick cement plaster in CM 1:4 with cost of pigment, cement labour for grinding with cost of all materials & labour etc. complete at all heights.	sqm	925.00

12.62	Extra for flooring of any type of stone/ tiles laid in approved design and pattern (Kite or other complicated).	sqm	86.00
12.63	Extra for laying of any type of stone in flooring in strips:		
12.63.1	Upto 100 mm width	sqm	43.00
12.63.2	Above 100 mm and upto 150 mm	sqm	28.50
12.64	Providing and laying upto 10mm wide stone strips for pattern in flooring of approved colour and shade of:		
12.64.1	Granite stone	metre	44.50
12.64.2	Jaisalmer stone	metre	21.50
12.65	Providing & laying 60mm thick precast interlocking concrete blocks of approved size (approx 305 sqcm) and shape/ pattern, over 40 mm thick average complete coarse sand bed with joints of 3mm thick filled by fine sand including leveling with surface vibrator, temping and sweeping etc. complete of minimum compressive strength of 250 kg/sq.cm		
12.65.1	Plain/ normal coloured precast interlock concrete block	sqm	436.00
12.65.2	Pigment Coloured (rubber mould) precast interlock concrete blocks	sqm	632.00
12.66	Providing and fixing precast compressed plain cement concrete edge restraint block of size 500mmx250mmx60mm of compressive strength of 200kg per sq.cm manufactured by electro hydraulically operated block machine by excavated trench of 150mm depth, laid width wise etc. complete	metre	169.00
12.67	Providing and laying brush concrete flooring of 12mm thick cement concrete (1 cement :2 black metal, 6mm size) mixed with granite pigment of approved quality in a ratio of 2.08 kg/sq metre are laid over & including a base of 40mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm size) with 12.50 mm size graded B.T metal mechanically mixed including neat cement finish over granite with red colour pigment including glass strip of size 45x3 mm, cost of all material & labor etc. complete.	sqm	464.00
12.68	25mm wooden planking tongued and grooved in flooring including fixing with iron screws complete with:		
12.68.1	Teak wood	sqm	3,423.00
12.68.2	Other than teak wood such as sal, haldoo and Bija	sqm	1,959.00
12.69	38 mm thick parquet (wood blocks) flooring of teak wood laid over 25mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10mm nominal size) to be paid separately coated with thin layer of hot bitumen (blown type) @ 2.45 kg/ sqm including fixing blocks after dipping in hot bitumen (blown type) upto half depth planned, leveled, smooth and finished complete.	sqm	6,233.00
12.70	Extra for planing the lower surface of wooden planking	sqm	48.00
12.71	Providing and fixing 2mm thick homogeneous polyvinyl chloride sheet in flooring and skirting in approved pattern on a smooth and damp proof base using rubber based adhesive @ 0.25 kg per sqm of approved quality and manufacturer like Dunlop S-758, Fevicol SR 998 or equivalent including rolling with light wooden roller weighting about 5 kg. all complete in approved colour and shade.	sqm	506.00

12.72	Providing and fixing in position homogeneous P.V.C. quartz reinforced floor covering tiles conforming to I.S. 3462/1986 of size 300x300 mm over existing smooth and finished surface including removal of dust etc. from existing floor and laying approved adhesive (Dunlop S- 758, Fevicol SR 998 or equivalent) at the rate of 0.25 kg/ sqm including rolling with light wooden roller weighing about 5 kg etc. complete.		
12.72.1	1.6mm thick tiles (weight 3 kg per sqm)	sqm	490.00
12.72.2	2.0 mm thick tiles (Weight 3.80 kg per sqm)	sqm	554.00
12.72.3	3 mm thick tiles (Weight 6 kg per sqm)	sqm	776.00
12.73	Dry brick on edge flooring in required pattern with bricks of class designation 3.5 on a bed of 12 mm mud mortar including filling joints with fine sand complete.	sqm	352.00
13	MARBLE & STONE WALL LINING WORK		
13.1	15 mm thick Marble work (machine cut, table rubbed & polished) for wall lining (veneer work) in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) mixed with matching pigment. (Area of slab should be over 0.5 sqm)		
13.1.1	Makrana white second quality.	sqm	3,831.00
13.1.2	Raj Nagar plain.	sqm	1,894.00
13.1.3	Agaria White	sqm	2,578.00
13.1.4	Black Zebra.	sqm	1,671.00
13.1.5	Udaipur green marble	sqm	1,671.00
13.1.6	Pink plain marble.	sqm	1,925.00
13.1.7	Wonder marble.	sqm	2,852.00
13.1.8	Katni marble.	sqm	1,925.00
13.2	8 mm thick Marble tile work (machine cut, table rubbed & polished) for wall lining (veneer work) in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) mixed with matching pigment.		
13.2.1	Makrana white second quality	sqm	2,104.00
13.2.2	Raj Nagar plain	sqm	1,194.00
13.2.3	Agaria White	sqm	1,497.00
13.2.4	Black Zebra	sqm	1,255.00
13.2.5	Udaipur green marble	sqm	1,073.00
13.2.6	Pink plain marble	sqm	1,194.00
13.3	15 mm thick Marble work (machine cut, table rubbed & polished) for kitchen platform, vanity counters, window sills and similar locations of required size laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) including joints treated with white cement mixed with matching pigment including rubbing and polishing to edge moulding to give high gloss finish.		
13.3.1	Makrana white second quality.	sqm	3,870.00
13.3.2	Raj Nagar plain.	sqm	2,022.00
13.3.3	Agaria White	sqm	2,674.00
13.3.4	Black Zebra.	sqm	1,808.00
13.3.5	Udaipur green marble	sqm	1,808.00
13.3.6	Pink plain marble.	sqm	2,051.00

13.3.7	Wonder marble.	sqm	2,936.00
13.3.8	Katni marble.	sqm	2,051.00
13.4	15mm thick Granite work (machine cut, table rubbed & mirror polished) for wall lining (veneer work) in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with cement mortar 1:2 (1 white cement: 2 marble dust) mixed with matching pigment. (Area of slab should be over 0.5 sqm).		
13.4.1	Granite stone grey/pink	sqm	1,958.00
13.4.2	Granite stone black	sqm	2,771.00
13.4.3	Granite stone lakha red/ shahi red	sqm	4,258.00
13.5	8mm thick Granite tile work (machine cut, table rubbed & mirror polished) for wall lining (veneer work) in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with cement mortar 1:2 (1 white cement : 2 marble dust) mixed with matching pigment.		
13.5.1	Granite stone grey/pink	sqm	1,328.00
13.5.2	Granite stone black	sqm	1,710.00
13.5.3	Granite stone lakha red/ shahi red	sqm	2,420.00
13.6	15mm thick Granite work (machine cut, table rubbed & mirror polished) for kitchen platform, vanity counters, window sills and similar locations of required size laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) including joints treated with white cement mixed with matching pigment including rubbing and polishing to edge moulding to give high gloss finish.		
13.6.1	Granite stone grey/pink	sqm	2,466.00
13.6.2	Granite stone black	sqm	3,279.00
13.6.3	Granite stone lakha red/ shahi red	sqm	4,766.00
13.7	Stone work with DHOLPUR SAND STONE (machine cut edge) exposed face fine dressed with rough backing for wall lining etc. (Veneer work) upto 10 metre height, backing filled with a grout of 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment matching the stone shade. (To be secured to the backing by means of cramps which shall be paid separately)		
13.7.1	40mm. thick	sqm	1,723.00
13.7.2	50mm. thick	sqm	1,890.00
13.7.3	60mm. thick	sqm	2,067.00
13.8	Stone work with DHOLPUR SAND STONE (machine cut edge) exposed face machine cut and table rubbed with rough backing for wall lining etc. (Veneer work) upto 10 metre height, backing filled with a grout of 20 mm thick cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment matching the stone shade. (To be secured to the backing by means of cramps which shall be paid separately)		
13.8.1	40mm. thick	sqm	2,054.00
13.8.2	50mm. thick	sqm	2,221.00
13.8.3	60mm. thick	sqm	2,414.00

13.9	Stone work with KOTA STONE Slab (machine cut edge) exposed face machine cut and table rubbed with rough backing for wall lining etc. (Veneer work) upto 10 metre height, backing filled with a grout of 20 mm thick cement mortar 1:3 (1 cement: 3 coarse sand), jointing with cement mortar 1:2 (1 cement: 2 stone dust) with admixture of pigment matching the stone shade including rubbing and polishing complete. (To be secured to the backing by means of cramps which shall be paid separately)		
13.9.1	25mm thick	sqm	1,026.00
13.9.2	40mm thick	sqm	1,145.00
13.10	Stone tile work (mirror polished, machine cut edge) for wall lining upto 10 metre height, with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), including pointing in white cement mortar 1:2 (1 cement : 2 marble dust) with an admixture of pigment matching the stone shade.		
13.10.1	Granite Stone of any colour and shade - 8mm thick	sqm	1,331.00
13.10.2	White/green/black marble - 8mm thick	sqm	1,153.00
13.10.3	Mica/ White stone - 10-20mm thick	sqm	680.00
13.11	Wall lining butch work upto 10m height with DHOLPUR STONE rough facing on the exposed surface with strips of 40 mm thick, 300mm (minimum) length and required width over 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand), embedding every tenth layer and bottom most layer of 75mm thick strips in masonry or concrete after making necessary chases of size 75mmx75mm, ruled pointing in white cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment matching the stone shade.	sqm	1,717.00
13.12	Providing and fixing dry cladding upto 10 metre heights with 30mm thick gang saw cut DHOLPUR SAND STONE (machine cut edges) of uniform colour and size upto 1mx1m size, fixed to structural steel frame work and/ or with the help of cramps, pins etc. and sealing the joints with weather sealant. (The steel frame work, stainless steel cramps and pins etc. shall be paid for separately.)	sqm	1,803.00
13.13	Extra for stone work (Veneer work) curved on plan with a mean radius not exceeding 6.0m.	sqm	57.50
13.14	Extra for stone work for wall lining on exterior wall beyond 10m height from ground level for every additional height of 3 metre or part thereof.	sqm	128.00
13.15	Providing and fixing clamps of required size and shape for anchoring stone wall lining to the backing or securing adjacent stone in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand) including making the necessary chases and/or holes in stone/wall.		
13.15.1	Gun metal cramps size 25mm x 6mm x 300mm	kg	132.00
13.15.2	Stainless steel cramps with stainless steel nuts and bolts and washer (total weight not less than 260 gms).	kg	393.00

13.16	Providing and fixing structural steel frame (for dry cladding of sand stone) on walls at all heights using M.S. square/ rectangular tube in the approved pattern including cost of cutting, bending, welding etc. The frame work shall be supported in wall with the help of MS brackets/ lugs of angle iron/ flats etc. which shall be welded to the frame and embedded in brick wall with cement concrete block of grade 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) of size 300x230x300mm and with approved expansion hold fasteners on CC/RCC surface including drilling necessary holes, approved cramps/ pins etc. shall be welded to the frame work to support stone cladding, the steel work will be given a priming coat of "ZINC" primer and painted with two or more coats of epoxy paint. (Stainless steel cramps shall be paid separately)	kg	118.00
13.17	Providing and fixing 15mm thick Granite (machine cut, table rubbed & mirror polished on both sides) for partition curtain in toilets or similar locations of required size in wall with cement mortar 1:4 (1 cement : 4 coarse sand) including cutting chase in wall and joint with wall treated with white cement mixed with matching pigment including rubbing and polishing to edge moulding to give high gloss finish.		
13.17.1	Granite stone grey/pink	sqm	2,111.00
13.17.2	Granite stone black	sqm	2,924.00
13.17.3	Granite stone lakha red/ shahi red	sqm	4,410.00
13.18	Providing and fixing copper pins 7.5 cm. long 6mm dia. for securing adjacent stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand) including making necessary chases.	each	27.00
13.19	Extra for providing edge moulding to 15mm thick stone counters, vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.		
13.19.1	Marble work	metre	103.00
13.19.2	Granite work	metre	172.00
13.20	Extra for fixing marble /granite stone in facia and drops of width upto 150 mm with epoxy resin based adhesive instead of cement mortar including cleaning etc. complete.	metre	257.00
13.21	Extra for making opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including making necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	each	253.00
13.22	Mirror polishing on marble work/ Kota stone/ Granite work where ever required to give high gloss finish complete.		
13.22.1	On walls/ Floor	sqm	184.00
13.22.2	On kitchen platform, sills and similar	sqm	207.00
13.23	Providing and fixing (Table Rubbed & polished) 30mm thick jali throughout (without sunk or moulded in jali slab) in white cement mortar 1:2 (1 white cement : 2 marble dust) with and admixture of pigment to match the marble shade, jali pattern to be cut square to jali slab without any chamfers as per drawings & designs and patterns approved by the Engineer-in-charge.		
13.23.1	Makrana white second quality.	sqm	9,283.00
13.23.2	Raj Nagar plain.	sqm	5,125.00
13.23.3	Agaria White	sqm	7,065.00

13.23.4	Black Zebra.	sqm	4,848.00
13.23.5	Udaipur green marble	sqm	4,848.00
13.23.6	Pink plain marble.	sqm	5,402.00
13.24	Providing and fixing one side polished 25 mm thick RAJIM SAND STONE shelves fixed in walls in cement mortar 1:3 (1 cement : 3 coarse sand) including finishing complete.		
13.24.1	One side polished	sqm	331.00
13.24.2	Both side polished	sqm	414.00
14	DISTEMPERING, PAINTING AND FINISHING		
14.1	Providing and applying plaster of paris putty over plastered wall surface including scaffolding complete		
14.1.1	Upto 2 mm thickness to make surface even and smooth in line and level.	sqm	63.00
14.1.2	More than 2 mm thickness to make surface even and smooth in true plumb and line and level.	sqm	93.50
14.2	Providing and applying plaster of paris putty over plastered ceiling surface including scaffolding complete.		
14.2.1	Upto 2 mm thickness to make surface even and smooth in line and level.	sqm	66.00
14.2.2	More than 2 mm thickness to make surface even and smooth in true plumb and line and level.	sqm	85.00
14.3	Providing and making plaster of paris moulding bend in approved pattern in ceiling / wall in line and level including scaffolding complete.		
14.3.1	Upto 50 mm width and 10mm thick	metre	18.50
14.3.2	Above 50 mm and upto 100 mm width and 10mm thick	metre	25.50
14.4	Preparation of wall surface by applying a coat of putty comprising of chalk mitti, varnish and white lead in ratio 2½:1:1 (2½ kg chalk mitti : 1 litre varnish : 1 kg white lead) respectively, sand papering and making the surface smooth to proper shape and presentable conditions.	sqm	35.00
14.5	White washing with lime to give an even shade.		
14.5.1	On new work (Three or more coats)	sqm	9.40
14.5.2	On old work (Two or more coats)	sqm	5.50
14.5.3	On old work (one coats)	sqm	3.20
14.6	White washing with whiting to give an even shade.		
14.6.1	On new work (Three or more coats)	sqm	9.00
14.6.2	On old work (Two or more coats)	sqm	5.30
14.6.3	On old work (one coats)	sqm	3.00
14.7	Colour washing such as green, blue or buff with lime to give an even shade.		
14.7.1	On new work (two or more coats) including a base coat of white washing	sqm	12.00
14.7.2	On old work (Two or more coats)	sqm	5.60
14.7.3	On old work (one coats)	sqm	3.20
14.8	Hiramchi colour wash to give and even shade.		
14.8.1	On new work (Two or more coats)	sqm	5.00
14.8.2	On old work (one coats)	sqm	2.90
14.9	Distempering with acrylic washable distemper to give an even shade.		

14.9.1	On new work (Two or more coats)	sqm	38.00
14.9.2	On old work (one or more coats)	sqm	17.50
14.10	Wall painting with acrylic premium emulsion (plastic) paint of required shade to give an even shade.		
14.10.1	On new work (two or more coats)	sqm	44.50
14.10.2	On old work (one or more coats)	sqm	28.50
14.11	Wall painting with acrylic luxury emulsion (plastic) paint of required shade to give an even shade.		
14.11.1	On new work (two or more coats)	sqm	52.50
14.11.2	On old work (one or more coats)	sqm	33.50
14.12	Applying one coat of cement primer on wall surface (applied @ 0.80 litres/10 sqm) complete.	sqm	23.00
14.13	Providing and applying 2mm thick ready mix exterior grade approved make putty (like Birla wall care, Alltek Superfine W/R of (NCL), Asian, ICI, Nerolac, J.K. wall putty) on walls to make the surface smooth and even.	sqm	94.50
14.14	Finishing walls with water proofing cement paint of required shade to give an even shade.		
14.14.1	On new work (Two or more coats applied @ 3.84 kg/10 sqm)	sqm	41.00
14.14.2	On old work (one or more coats applied @ 2.20 kg/10 sqm)	sqm	25.50
14.15	Painting exterior surface with ACRYLIC SMOOTH exterior paint of required shade as per manufacturer's specifications to give protective and decorative finish including cleaning washing of surface etc. complete with:		
14.15.1	On new work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm)	sqm	56.00
14.15.2	On old work (One or more coats applied @ 0.83 ltr/ 10 sqm)	sqm	37.00
14.16	Painting exterior surface with PREMIUM ACRYLIC SMOOTH exterior paint of required shade as per manufacturer's specifications to give protective and decorative finish including cleaning washing of surface etc. complete with:		
14.16.1	On new work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm)	sqm	74.50
14.16.2	On old work (One or more coats applied @ 0.83 ltr/ 10 sqm)	sqm	47.50
14.17	Painting exterior surface with TEXTURED exterior paint of required shade as per manufacturer's specifications to give protective and decorative finish including cleaning washing of surface etc. complete with:		
14.17.1	On new work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/ 10 sqm	sqm	140.00
14.17.2	On old work (One or more coats applied @ 1.82 ltr/ 10 sqm)	sqm	78.50
14.18	Providing and applying synthetic/ acrylic plaster giving protective layer and decorative finish on any surface in approved design and shade as per manufacturer's specifications:		
14.18.1	2.0mm thickness (average) having design scratched with special roller.	sqm	410.00
14.18.2	1.5mm thickness (average) having spray coat finish with special roller.	sqm	389.00
14.18.3	300 micron thickness (average) having superfine finish.	sqm	297.00

14.19	Finishing with epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including priming coat with epoxy primer, preparation of surface, etc. complete.	sqm	131.00
14.20	Applying priming coat on wood work with ready mixed primer.	sqm	23.50
14.21	Applying priming coat on steel work with red oxide zinc chromate primer.	sqm	17.50
14.22	Painting on new work (two or more coats) to give an even shade with:		
14.22.1	Satin synthetic enamel paint	sqm	55.00
14.22.2	Premium synthetic enamel paint	sqm	47.00
14.22.3	Aluminium paint	sqm	58.50
14.22.4	Black anti-corrosive bitumastic paint	sqm	38.50
14.22.5	Black Japan paint	sqm	39.00
14.23	Painting on old work (one or more coats) to give an even shade with:		
14.23.1	Satin synthetic enamel paint	sqm	35.00
14.23.2	Premium synthetic enamel paint	sqm	30.00
14.23.3	Aluminium paint	sqm	37.00
14.23.4	Black anti-corrosive bitumastic paint	sqm	25.00
14.23.5	Black Japan paint	sqm	25.50
14.24	Extra for painting with spray painting machine instead of paint brush:		
14.24.1	On new work	sqm	5.00
14.24.2	On old work	sqm	2.20
14.25	Providing and laying French sprit polish on new wood work after preparing the surface by rubbing down smooth with sand papers, covering the knots, if visible, applying a coat of wood filler, cleaning the surface, applying 50 or more coats of French spirit polish till the surface gives high gloss.	sqm	143.00
14.26	Providing and laying French sprit polish on old wood work after preparing the surface by washing all dust, dirt and greasiness with detergent, rubbing down smooth with sand papers, covering the knots or undulations by applying a coat of wood filler if required, cleaning the surface, applying 5 or more coats of French spirit polish till the surface gives high gloss.	sqm	59.50
14.27	Providing and laying Melamine polish on new wood work (two or more coats) with spray machine after preparing surface by rubbing down smooth with sand papers, preparation of surface, applying 5 to 10 coats of French sprit polish, applying two coats of Melamine sealer and finally applying two coats of Melamine clear as per manufacturers specifications complete:	sqm	469.00
14.28	Providing and laying PU polish on new wood work (two or more coats) with spray machine after preparing surface by rubbing down smooth with sand papers, preparation of surface, applying 5 to 10 coats of French sprit polish, applying two coats of PU sealer and finally applying two coats of PU clear as per manufacturers specifications complete:	sqm	656.00
14.29	Applying priming coat with ready mixed primer on small articles not exceeding 0.10 sqm in area not in conjunction to similar primer painted work.	each	4.30

14.30	Painting small articles not exceeding 0.10 sqm of painted surface with superior quality enamel paint, not in conjunction to similar painted work.	each	5.10
14.31	Applying priming coat with ready mixed primer on surface upto 15 centimetre width or girth not in conjunction to similar painted work..	each	6.40
14.32	Painting small articles upto 15 cm in width or girth with superior quality enamel paint, not in conjunction to similar painted work.	each	7.60
14.33	Applying priming coat with ready mixed primer on picture or curtain rail.	metre	6.10
14.34	Painting (one or more coats) on picture or curtain rail with superior quality enamel paint to give an even shade.	metre	7.20
14.35	Floor painting with superior quality enamel paint to give an even shade.		
14.35.1	On new work (two or more coats)	sqm	43.00
14.35.2	On old work (one or more coats)	sqm	25.50
14.36	Flooring polishing with superior quality wax polish of approved brand and manufacture.	sqm	26.50
14.37	Painting with black anticorrosive bitumastic paint on new work (two or more coats) on rain water, soil waste, vent pipes and fittings:		
14.37.1	50 mm diameter pipes.	metre	8.10
14.37.2	75 mm diameter pipes.	metre	11.00
14.37.3	100 mm diameter pipes	metre	14.50
14.37.4	150 mm diameter pipes	metre	21.00
14.38	Painting with black anticorrosive bitumastic paint on old work (one or more coats) on rain water, soil waste, vent pipes and fittings:		
14.38.1	50 mm diameter pipes.	metre	4.90
14.38.2	75 mm diameter pipes.	metre	6.90
14.38.3	100 mm diameter pipes	metre	8.90
14.38.4	150 mm diameter pipes	metre	13.50
14.39	Painting with aluminium paint on new work (two or more coats) on rain water, soil waste, vent pipes and fittings over and including a priming coat of red oxide zinc chromate primer:		
14.39.1	50 mm diameter pipes.	metre	14.50
14.39.2	75 mm diameter pipes.	metre	20.50
14.39.3	100 mm diameter pipes	metre	26.00
14.39.4	150 mm diameter pipes	metre	39.00
14.40	Painting with aluminium paint on old work (one or more coats) on rain water, soil waste, vent pipes and fittings		
14.40.1	50 mm diameter pipes.	metre	4.90
14.40.2	75 mm diameter pipes.	metre	9.20
14.40.3	100 mm diameter pipes	metre	8.90
14.40.4	150 mm diameter pipes	metre	18.00
14.41	Lettering with black Japan paint, per cm height.	per letter	0.70
14.42	Re-Lettering with black Japan paint, per cm height.	per letter	0.50
14.43	Coal tarring two coats on new work using 0.16 and 0.12 litre coal tar per sqm in the first and second coat respectively.	sqm	20.50
14.44	Removing white or colour wash by scrapping, sand papering and preparing the surface smooth including necessary repair to scratches etc. complete.	sqm	4.30

14.45	Removing dry or oil bound distemper by scraping sand papering and preparing the surfaces smooth including necessary repair to scratches etc. complete.	sqm	5.20
14.46	Removing old paint or polish by paint remover or blow lamp or any other means as approved including preparing the surface smooth after removing the paint.	sqm	32.50
14.47	Coal tarring one coat on old work using 0.12 litre coaltar per sqm	sqm	30.50
15	PILE WORK		
15.1	Providing, driving and installing driven cast-in-situ reinforced cement concrete piles of specified diameter and length below the pile cap in cement concrete M-35 grade, to carry safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of shoe and the length of pile to be embedded in the pile cap etc. all complete. (Length of pile for payment shall be measured from top of shoe to the bottom of pile cap):		
15.1.1	400 mm dia piles	metre	1,035.00
15.1.2	450 mm dia piles	metre	1,270.00
15.1.3	500 mm dia piles	metre	1,506.00
15.1.4	550 mm dia piles	metre	1,506.00
15.1.5	750 mm dia piles.	metre	2,293.00
15.2	Boring, providing and installing bored cast-in-situ reinforced cement concrete pile of specified diameter and length below the pile cap in cement concrete M-35 grade, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with, bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap):		
15.2.1	300 mm dia piles	metre	957.00
15.2.2	400 mm dia piles	metre	969.00
15.2.3	450 mm dia piles	metre	1,267.00
15.2.4	500 mm dia. piles	metre	1,456.00
15.2.5	600 mm dia piles	metre	1,765.00
15.2.6	750 mm dia piles.	metre	2,342.00
15.3	Boring, Providing and installing cast in situ single under reamed piles of specified diameter and length below pile cap in cement concrete M-35 grade, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and the length of the pile to be embedded in pile cap etc. all complete. (Length of pile for payment shall be measured upto to the bottom of pile cap):		
15.3.1	300 mm dia piles.	metre	1,505.00
15.3.2	400 mm dia piles	metre	1,538.00
15.3.3	450 mm dia piles	metre	1,553.00
15.3.4	550 mm dia piles	metre	1,556.00
15.4	Extra for providing additional bulb in under reamed piles, under specified dia meter (Only the quantity of extra bulbs are to be paid).		

15.4.1	300mm dia piles.	each	1,094.00
15.4.2	400mm dia piles.	each	1,105.00
15.4.3	450 mm dia piles.	each	1,112.00
15.4.4	550 mm dia piles.	each	1,168.00
15.5	Boring, providing and installing cast in situ single under reamed piles of specified diameter and length below pile cap in cement concrete 1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate 20mm nominal size), to carry a safe working load, excluding the cost of steel reinforcement but including the cost of boring with auger by manual means and making one bulb using suitable bulb enlarging tool by MANUAL MEANS with all instruments and arrangements required for boring true to vertical line etc. all complete. (Length of pile for payment shall be measured upto to the bottom of pile cap):		
15.5.1	250 mm dia piles.	metre	541.00
15.5.2	300 mm dia piles	metre	776.00
15.6	Extra for providing additional bulb in under reamed piles, under specified dia using necessary bulb enlarging tool and by MANUAL MEANS (Only the quantity of extra bulbs are to be paid):		
15.6.1	250 mm dia piles.	each	323.00
15.6.2	300 mm dia piles.	each	365.00
15.7	Providing, driving and installing driven Pre-cast reinforced cement concrete piles of specified diameter and length below the pile cap in M 35 cement concrete to carry safe working load not less than specified. With a central through preformed hole with M.S. black pipe of dia, 40mm for grouting with cement sand grouting of mix 1:2 (1 cement : 2 coarse sand) under sufficient positive pressure to ensure complete filling including centering, shuttering, driving and removing the steel casing pipe and lifting casing etc. complete but excluding the cost of steel reinforcement. (Length of pile for payment shall be measured from top of the shoe to the bottom of pile cap).		
15.7.1	400 mm dia piles.	metre	1,240.00
15.7.2	450 mm dia piles.	metre	1,349.00
15.7.3	500 mm dia piles.	metre	1,265.00
15.7.4	550 mm dia piles.	metre	1,280.00
15.7.5	750 mm dia piles.	metre	1,389.00
15.8	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.		
15.8.1	Single pile upto 50 tonne capacity		
15.8.2	Initial test.	per test	38,346.00
15.8.3	Routine test	per test	17,325.00
15.8.4	Single pile above 50 tonne and upto 100 tonne capacity		
15.8.5	Initial test	per test	46,547.00
15.8.6	Routine test.	per test	26,565.00
15.8.7	Group of two or more piles upto 50 tonne capacity		
15.8.8	Initial test	per test	56,018.00
15.8.9	Routine test	per test	34,073.00

15.9	Cyclic vertical load testing of pile in accordance with IS Code of practice IS : 2911 (part IV) including preparation of pile head etc for.		
15.9.1	Single pile.		
15.9.2	Upto 50 tonne capacity pile.	per test	17,325.00
15.9.3	Above 50 tonne and upto 100 tonne capacity pile.	per test	26,565.00
15.9.4	Group of two piles.		
15.9.5	Upto 50 tonne capacity each .	per test.	34,073.00
15.10	Lateral load testing of single pile in accordance with IS Code of practice IS : 2911 (Part IV) for determining safe allowable lateral load on pile :		
15.10.1	Upto 50 tonne capacity pile.	per test	17,325.00
15.10.2	Above 50 tonne and upto 100 tonne capacity pile.	per test	27,143.00
23	FIRE FIGHTING		
	Dry Power Extinguisher Stored Pressure Type	No.	7000

B Water Distribution Network

B.1 UPVC Pipes

SN	Particulars	Unit	Rate For Supply	Rate For laying/ commissioning	Total Rate
1	Trenching work with proper back filling for Distribution of pipe lines :	Mtr	-	100.00	100.00
2	Supply & Laying of UPVC Pipe of 06 kg/cm ² pressure for following size:				
2.1	UPVC Pipe Line of 75 MM	Mtr	127.98	3.00	130.98
2.2	UPVC Pipe Line of 90 MM	Mtr	182.87	4.00	186.87
2.3	UPVC Pipe Line of 110 MM	Mtr	267.97	5.00	272.97
2.4	UPVC Pipe Line of 140 MM	Mtr	442.32	9.00	451.32
2.5	UPVC Pipe Line of 160 MM	Mtr	572.68	11.00	583.68
2.6	UPVC Pipe Line of 180 MM	Mtr	727.41	15.00	742.41
2.7	UPVC Pipe Line of 200 MM	Mtr	921.37	18.00	939.37
2.8	UPVC Pipe Line of 225 MM	Mtr	1,167.64	23.00	1,190.64
2.9	UPVC Pipe Line of 250 MM	Mtr	1,451.65	29.00	1,480.65
2.10	UPVC Pipe Line of 280 MM	Mtr	1,647.98	33.00	1,680.98
3	Supply & Fixing of Position gate valve/ Drain valve for UPVC pipe line including all accessories & materials of following size of dia :				
3.1	110 mm	No.	2,012.67	40.00	2,052.67
3.2	140 mm	No.	2,667.60	53.00	2,720.60
3.3	160 mm	No.	3,320.82	66.00	3,386.82
3.4	180 mm	No.	3,986.87	80.00	4,066.87
3.5	200 mm	No.	4,987.22	100.00	5,087.22
3.6	250 mm	No.	6,673.35	133.00	6,806.35
4	Supply & Fixing of Position Ball valve for UPVC pipe line including all accessories & materials of following size of dia :				
4.1	75 mm	No.	308.75	6.00	314.75
5	Supply & Fixing of Non Return Valve for UPVC pipe line including all accessories & materials of following size of dia :				
5.1	140 mm	No.	7,823.25	156.00	7,979.25
5.2	150 mm	No.	11,542.50	231.00	11,773.50
5.3	160 mm	No.	11,542.50	231.00	11,773.50
5.4	180 mm	No.	19,280.25	386.00	19,666.25
5.5	200 mm	No.	19,280.25	386.00	19,666.25
5.6	250 mm	No.	30,096.00	602.00	30,698.00
5.7	280 mm	No.	35,200.00	704.00	35,904.00
6	Supply & Fixing of Air release Valve with UPVC service saddle & 1 mm long 25 mm dia GI Pipe including all material & accessories for following size of dia :				
6.1	110 x 25 mm (If required)	No.	1,314.14	26.00	1,340.14
6.2	140 X 25 mm (If required)	No.	1,356.03	27.00	1,383.03
6.3	160 X 25 mm (If required)	No.	1,418.45	28.00	1,446.45
6.4	180 X 25 mm	No.	1,541.57	31.00	1,572.57
6.5	200 X 25 mm	No.	1,644.17	33.00	1,677.17
6.6	225 X 25 mm	No.	1,973.34	39.00	2,012.34
7	Civil work-thurst blocks, valve chambers	Per Hect.	1,900.00	-	1,900.00

B.1 HDPE Pipes

- 1 High Density polyethylene pipes for Water Supply shall be as per IS : 4984
- 2 Rubber sealing rings for gas mains, water mains and sewers shall be as per IS : 5382.
- 3 Laying & jointing of polyethylene (PE) Pipes shall be as per IS : 7634
- 4 Colour
 - 4.1 The colour of the pipe shall be black for the purpose of identification of the pipes covered in this standard. Each pipe shall contain minimum three equi-spaced longitudinal stripes of width 3 mm (Min) in blue colour. These stripes shall be more than 0.2 mm in depth. The material of the stripes shall be of the same type of resin, as used in the base compound for the pipe.
- 5 Length of straight Pipe & marking on pipe
 - 5.1 The length of straight pipe used shall be more than 6 m or as agreed by Engineer in charge. Short lengths of 3 meter (minimum) up to a Maximum of 10 % of the total supply may be permitted.
 - 5.2 Each straight length of pipe shall be clearly marked in indelible ink/paint on either end and for coil at both ends or hot embossed on white base every meter throughout the length of pipe/coil with the following information:
 - 5.2.1 Manufacturer's name/Trade-mark,
 - 5.2.2 Designation of pipe
 - 5.2.3 Lot No./Batch No.
 - 5.2.4 BIS certification marking on each pipe.
- 6 Appearance

Pipe shall be free from all defect including indentation, delaminating, bubbles, pinholes, cracks, pits, blisters, foreign inclusion that due to their nature degree or extent free of scouring, inside diameter from that obtained on adjacent unaffected portions of the surface. The pipe cavities, bulges, dents, ridges and other defects that result in a variation of detrimentally affect the strength and Serviceability of the pipe. The pipe shall be as uniform as commercially practicable in colour opacity, density and other physical properties as per relevant IS code or equivalent International Code. The inside surface of each pipe shall be ends shall be cut clearly and square to the axis of the pipe within the tolerance as per IS:4984
- 7 Handling, Transportation storage and Lowering of pipes.
 - If transportation of HDPE pipes from a distance greater than 300km than pipes shall be received only when bare coils of pipe have been wrapped with Hessian cloth.
 - The truck for transportation of the PE pipes shall be exclusively used for PE pipes only with no other material loaded-especially no metallic, glass and wooden items. The truck shall not have sharp edges that can damage the pipe.
 - At the time of opening coils it must be remembered that the coils are under tension and must be open in control manner.
 - Straight length should be stored on horizontal racks giving continuous support.
 - Loss/damages during transit, handling, storage will be to the contractor's account.
- 8 Fittings and specials :

All HDPE fittings/specials shall be fabricated or injection moulded at factory as per IS: 8360 (Part-I & Part-III) and as per IS: 8008 (Part-I to Part-IX). Fittings will be butt welded on the pipes or other fittings by use of heat fusion.
- 9 Test to Establish Perfectibility/portability of work Specimen of pipe shall be tested to establish the suitability for use in carrying potable water
 - (i) Smell of the extract
 - (ii) Clarity of the colour of the extract
 - (iii) Acidity and Alkalinity
 - (iv) Global migration UV absorbing material Heavy metals
 - (v) Unreacted monomers (styrens) and biological tests
- 10 Hydraulic Test

After laying the pipe hydraulic test shall be done to Conform the quality of work and material. There should not be any signs of localized swelling, leakage or weeping.

- 11 Laying of pipes and fittings/specials includes all precautions to guard against possible damage to the existing structure/pipe lines, cables etc., taking precautions to prevent dirt from entering the pipe ends, lowering and laying pipes and specials in the trenches with specials arrangement such as cranes, tripods with chain pulley block, use of slings of canvas etc. to fit the ends of pipes and fittings/ specials to lift and lower the same. Inspection of pipes and fittings for defects by striking with a light hammer while suspended. Laying of pipes perfectly true in alignment and to gradient etc.

12 Measurement

The net length of fixed pipe shall be measured in running meters correct to 10mm. The portion of the pipe inside the joints shall not be included in the length of pipe work. Specials shall be excluded and measured and paid separately under the relevant item.

13 Rates :

The rate shall include the cost of the material and labour involve in all operations described in the item.

S.N	Particulars of Items	Unit	Rate (in Rs.)		
10.1	Providing, laying, Jointing & field testing of High Density Polyethylene pipes, (HDPE) Conforming to IS 4984/ 14151/12786//13488 with necessary jointing material like mechanical connector or jointing pipes by heating to the ends of pipes with the help of Teflon coated electric mirror/ heater to the required temperature and then pressing the ends together against each other, to form a monolithic & leak proof joint by thermosetting process. It may be required to be done with Jacks/Hydraulic Jacks/ But fusion machine. (50mm & above fusion jointed & below 50mm mechanical jointed) PE-100		6 Kg/sq.cm	8 Kg/sq.cm	10 Kg/sq.cm
1	20 mm dia	RM	33.00	34.00	35.00
2	25 mm dia	RM	39.00	41.00	45.00
3	32 mm dia	RM	49.00	50.00	56.00
4	40 mm dia	RM	62.00	70.00	82.00
5	50 mm dia	RM	82.00	100.00	118.00
6	63 mm dia	RM	125.00	156.00	185.00
7	75 mm dia	RM	178.00	219.00	262.00
8	90 mm dia	RM	245.00	307.00	368.00
9	110 mm dia	RM	351.00	452.00	540.00
10	125 mm dia	RM	457.00	580.00	694.00
11	140 mm dia	RM	568.00	721.00	862.00
12	160 mm dia	RM	740.00	942.00	1129.00
13	180 mm dia	RM	926.00	1182.00	1439.00
14	200 mm dia	RM	1145.00	1464.00	1767.00
15	225 mm dia	RM	1448.00	1848.00	2224.00

16	250 mm dia	RM	1775.00	2274.00	2736.00
17	280 mm dia	RM	2217.00	2843.00	3419.00
18	315 mm dia	RM	2798.00	3585.00	4322.00
19	355 mm dia	RM	3570.00	4570.00	5538.00
20	400 mm dia	RM	4607.00	5914.00	7166.00
21	450 mm dia	RM	5834.00	7497.00	9045.00
22	500 mm dia	RM	7210.00	9245.00	11173.00
23	560 mm dia	RM	9020.00	11600.00	13991.00
24	630 mm dia	RM	11399.00	14656.00	17704.00
25	710 mm dia	RM	13782.00	17715.00	21421.00

Providing and laying Bend 90' Conforming to IS specifications.

S.No	Particulars of Items	Unit	Rate (in Rs.)		
			6 Kg/sq.cm	8 Kg/sq.cm	10 Kg/sq.cm
1	20 mm dia	Each	26.00	28.00	29.00
2	25 mm dia	Each	29.00	32.00	33.00
3	32 mm dia	Each	38.00	39.00	41.00
4	40 mm dia	Each	42.00	45.00	46.00
5	50 mm dia	Each	55.00	60.00	66.00
6	63 mm dia	Each	76.00	81.00	108.00
7	75 mm dia	Each	117.00	122.00	138.00
8	90 mm dia	Each	181.00	194.00	222.00
9	110 mm dia	Each	240.00	281.00	300.00
10	125 mm dia	Each	345.00	329.00	504.00
11	140 mm dia	Each	469.00	584.00	690.00
12	160 mm dia	Each	672.00	844.00	1003.00
13	180 mm dia	Each	927.00	1172.00	1405.00
14	200 mm dia	Each	1242.00	1579.00	1898.00
15	225 mm dia	Each	1747.00	2222.00	2668.00
16	250 mm dia	Each	2359.00	3017.00	3627.00
17	280 mm dia	Each	3286.00	4209.00	5059.00
18	315 mm dia	Each	4651.00	5959.00	7183.00
19	355 mm dia	Each	6601.00	8457.00	10251.00
20	400 mm dia	Each	9591.00	12320.00	14934.00
21	450 mm dia	Each	13603.00	17509.00	21145.00
22	500 mm dia	Each	18671.00	23986.00	29018.00
23	560 mm dia	Each	26102.00	33643.00	40631.00
24	630 mm dia	Each	37125.00	47839.00	57865.00
25	710 mm dia	Each	52919.00	68217.00	82718.00

Providing and laying Bend 45' Conforming to IS specifications.

S.No	Particulars of Items	Unit	Rate (in Rs.)		
			6 Kg/sq.cm	8 Kg/sq.cm	10 Kg/sq.cm
1	20 mm dia	Each	26.00	28.00	29.00

2	25 mm dia	Each	28.00	30.00	32.00
3	32 mm dia	Each	29.00	32.00	37.00
4	40 mm dia	Each	35.00	38.00	47.00
5	50 mm dia	Each	49.00	49.00	65.00
6	63 mm dia	Each	87.00	87.00	115.00
7	75 mm dia	Each	133.00	133.00	176.00
8	90 mm dia	Each	192.00	192.00	259.00
9	110 mm dia	Each	283.00	283.00	412.00
10	125 mm dia	Each	395.00	305.00	606.00
11	140 mm dia	Each	576.00	411.00	867.00
12	160 mm dia	Each	831.00	587.00	1244.00
13	180 mm dia	Each	1125.00	807.00	1706.00
14	200 mm dia	Each	1483.00	1079.00	2261.00
15	225 mm dia	Each	2091.00	1509.00	3207.00
16	250 mm dia	Each	2824.00	2040.00	4320.00
17	280 mm dia	Each	3872.00	2838.00	5841.00
18	315 mm dia	Each	5941.00	4007.00	8943.00
19	355 mm dia	Each	8548.00	5404.00	12904.00
20	400 mm dia	Each	11660.00	6994.00	18611.00
21	450 mm dia	Each	15293.00	8926.00	23906.00
22	500 mm dia	Each	21393.00	11004.00	33614.00
23	560 mm dia	Each	29661.00	13773.00	33855.00
24	630 mm dia	Each	38035.00	17393.00	34340.00
25	710 mm dia	Each	42887.00	17812.00	34763.00

Providing and laying Equal Tee Conforming to IS specifications.

S.No	Particulars of Items	Unit	Rate (in Rs.)		
			6 Kg/sq.cm	8 Kg/sq.cm	10 Kg/sq.cm
1	20 mm dia	Each	28.00	30.00	31.00
2	25 mm dia	Each	37.00	39.00	40.00
3	32 mm dia	Each	38.00	41.00	42.00
4	40 mm dia	Each	42.00	46.00	46.00
5	50 mm dia	Each	57.00	63.00	74.00
6	63 mm dia	Each	93.00	103.00	114.00
7	75 mm dia	Each	154.00	160.00	197.00
8	90 mm dia	Each	274.00	278.00	337.00
9	110 mm dia	Each	400.00	413.00	483.00
10	125 mm dia	Each	442.00	552.00	653.00
11	140 mm dia	Each	603.00	756.00	896.00
12	160 mm dia	Each	871.00	1100.00	1311.00
13	180 mm dia	Each	1211.00	1536.00	1844.00
14	200 mm dia	Each	1631.00	2077.00	2500.00
15	225 mm dia	Each	2305.00	2937.00	3528.00
16	250 mm dia	Each	3114.00	3986.00	4793.00
17	280 mm dia	Each	4348.00	5572.00	6697.00
18	315 mm dia	Each	6169.00	7905.00	9526.00

19	355 mm dia	Each	8771.00	11235.00	13611.00
20	400 mm dia	Each	12734.00	16353.00	19808.00
21	450 mm dia	Each	17283.00	22231.00	26824.00
22	500 mm dia	Each	24813.00	31857.00	38508.00
23	560 mm dia	Each	34723.00	44722.00	53962.00
24	630 mm dia	Each	49390.00	63590.00	76844.00
25	710 mm dia	Each	70456.00	90741.00	109918.00

Providing and laying Pipe end Conforming to IS specifications.

S.No	Particulars of Items	Unit	Rate (in Rs.)		
			6 Kg/sq.cm	8 Kg/sq.cm	10 Kg/sq.cm
1	20 mm dia	Each	39.00	41.00	43.00
2	25 mm dia	Each	41.00	43.00	46.00
3	32 mm dia	Each	43.00	46.00	48.00
4	40 mm dia	Each	46.00	51.00	52.00
5	50 mm dia	Each	54.00	56.00	58.00
6	63 mm dia	Each	67.00	69.00	71.00
7	75 mm dia	Each	86.00	94.00	94.00
8	90 mm dia	Each	125.00	142.00	142.00
9	110 mm dia	Each	160.00	187.00	187.00
10	125 mm dia	Each	247.00	281.00	281.00
11	140 mm dia	Each	312.00	355.00	355.00
12	160 mm dia	Each	317.00	373.00	373.00
13	180 mm dia	Each	490.00	560.00	560.00
14	200 mm dia	Each	485.00	577.00	572.00
15	225 mm dia	Each	505.00	615.00	615.00
16	250 mm dia	Each	825.00	843.00	961.00
17	280 mm dia	Each	765.00	935.00	935.00
18	315 mm dia	Each	1148.00	1417.00	1417.00
19	355 mm dia	Each	1582.00	1923.00	1923.00
20	400 mm dia	Each	1968.00	2402.00	2402.00
21	450 mm dia	Each	2327.00	2876.00	2876.00
22	500 mm dia	Each	2933.00	3611.00	3611.00
23	560 mm dia	Each	4171.00	5021.00	5021.00
24	630 mm dia	Each	3576.00	4652.00	4652.00
25	710 mm dia	Each	5492.00	7133.00	7133.00

Providing and laying Reducer 6 kg/sq.cm : Conforming to IS specifications.

	Unit	STEP I	STEP II	STEP III	
1	20 mm dia	Each	-	-	
2	25 mm dia	Each	43.00	-	
3	32 mm dia	Each	49.00	49.00	
4	40 mm dia	Each	56.00	56.00	61.00
5	50 mm dia	Each	68.00	70.00	72.00
6	63 mm dia	Each	83.00	84.00	85.00

7	75 mm dia	Each	105.00	107.00	113.00
8	90 mm dia	Each	114.00	120.00	126.00
9	110 mm dia	Each	113.00	140.00	137.00
10	125 mm dia	Each	122.00	162.00	155.00
11	140 mm dia	Each	144.00	179.00	183.00
12	160 mm dia	Each	187.00	234.00	224.00
13	180 mm dia	Each	220.00	298.00	277.00
14	200 mm dia	Each	254.00	347.00	338.00
15	225 mm dia	Each	329.00	447.00	426.00
16	250 mm dia	Each	385.00	433.00	518.00
17	280 mm dia	Each	509.00	542.00	545.00
18	315 mm dia	Each	673.00	656.00	710.00
19	355 mm dia	Each	957.00	918.00	1120.00
20	400 mm dia	Each	1010.00	1146.00	1304.00
21	450 mm dia	Each	1333.00	1505.00	4620.00
22	500 mm dia	Each	1625.00	1904.00	5502.00
23	560 mm dia	Each	2331.00	2452.00	10797.00
24	630 mm dia	Each	2764.00	2883.00	11534.00
25	710 mm dia	Each	3609.00	3718.00	23453.00

Providing and laying Reducer 8 kg/sq.cm : Conforming to IS specifications.

	Unit	STEP I	STEP II	STEP III	
1	20 mm dia	Each	-	-	-
2	25 mm dia	Each	44.00	-	-
3	32 mm dia	Each	50.00	50.00	-
4	40 mm dia	Each	57.00	57.00	62.00
5	50 mm dia	Each	68.00	71.00	74.00
6	63 mm dia	Each	94.00	97.00	100.00
7	75 mm dia	Each	112.00	117.00	122.00
8	90 mm dia	Each	123.00	130.00	137.00
9	110 mm dia	Each	112.00	132.00	154.00
10	125 mm dia	Each	134.00	174.00	173.00
11	140 mm dia	Each	169.00	214.00	221.00
12	160 mm dia	Each	210.00	277.00	284.00
13	180 mm dia	Each	247.00	338.00	322.00
14	200 mm dia	Each	305.00	418.00	401.00
15	225 mm dia	Each	374.00	460.00	497.00
16	250 mm dia	Each	487.00	516.00	556.00
17	280 mm dia	Each	622.00	681.00	687.00
18	315 mm dia	Each	864.00	893.00	975.00
19	355 mm dia	Each	1026.00	1083.00	1273.00
20	400 mm dia	Each	1288.00	1459.00	1561.00
21	450 mm dia	Each	1616.00	1797.00	1781.00
22	500 mm dia	Each	2109.00	2316.00	2339.00
23	560 mm dia	Each	2699.00	2789.00	2621.00
24	630 mm dia	Each	3005.00	3100.00	3010.00
25	710 mm dia	Each	3048.00	3306.00	3236.00

Providing and laying Reducer 10 kg/sq.cm : Conforming to IS specifications.

	Unit	STEP I	STEP II	STEP III
1	20 mm dia	Each	-	-
2	25 mm dia	Each	49.00	-
3	32 mm dia	Each	55.00	56.00
4	40 mm dia	Each	62.00	62.00
5	50 mm dia	Each	73.00	76.00
6	63 mm dia	Each	89.00	92.00
7	75 mm dia	Each	111.00	117.00
8	90 mm dia	Each	124.00	134.00
9	110 mm dia	Each	130.00	155.00
10	125 mm dia	Each	146.00	175.00
11	140 mm dia	Each	154.00	194.00
12	160 mm dia	Each	201.00	254.00
13	180 mm dia	Each	237.00	325.00
14	200 mm dia	Each	276.00	380.00
15	225 mm dia	Each	360.00	493.00
16	250 mm dia	Each	423.00	477.00
17	280 mm dia	Each	596.00	607.00
18	315 mm dia	Each	744.00	821.00
19	355 mm dia	Each	1062.00	1019.00
20	400 mm dia	Each	1119.00	1272.00
21	450 mm dia	Each	1582.00	1789.00
22	500 mm dia	Each	1930.00	2118.00
23	560 mm dia	Each	2598.00	2734.00
24	630 mm dia	Each	3082.00	3141.00
25	710 mm dia	Each	3259.00	3331.00

Providing butt fusion welded joint/jointing by heating to the ends with the help of Teflon coated electric mirror/heater ends together etc. by thermosetting process to HDPE Pipe and below 50mm mechanical jointed)10kg) (50mm & above fusion jointed &8kg, specials. (6kg,

	Unit	Rate (In Rs.)	
1	20 mm dia	Each	59.00
2	25 mm dia	Each	59.00
3	32 mm dia	Each	65.00
4	40 mm dia	Each	80.00
5	50 mm dia	Each	73.00
6	63 mm dia	Each	96.00
7	75 mm dia	Each	120.00
8	90 mm dia	Each	133.00
9	110 mm dia	Each	146.00
10	125 mm dia	Each	177.00
11	140 mm dia	Each	187.00
12	160 mm dia	Each	204.00
13	180 mm dia	Each	214.00

14	200 mm dia	Each	228.00
15	225 mm dia	Each	253.00
16	250 mm dia	Each	298.00
17	280 mm dia	Each	319.00
18	315 mm dia	Each	348.00
19	355 mm dia	Each	389.00
20	400 mm dia	Each	455.00
21	450 mm dia	Each	609.00
22	500 mm dia	Each	729.00
23	560 mm dia	Each	897.00
24	630 mm dia	Each	1015.00
25	710 mm dia	Each	1166.00

10. Providing and laying End Cap Conforming to IS specifications.

			6 Kg/sq.cm	8 Kg/sq.cm	10 Kg/sq.cm
1	20 mm dia	Each	40.00	40.00	40.00
2	25 mm dia	Each	40.00	40.00	42.00
3	32 mm dia	Each	42.00	42.00	44.00
4	40 mm dia	Each	43.00	44.00	47.00
5	50 mm dia	Each	51.00	56.00	58.00
6	63 mm dia	Each	68.00	69.00	73.00
7	75 mm dia	Each	85.00	88.00	93.00
8	90 mm dia	Each	96.00	97.00	103.00
9	110 mm dia	Each	85.00	100.00	105.00
10	125 mm dia	Each	120.00	165.00	169.00
11	140 mm dia	Each	174.00	197.00	202.00
12	160 mm dia	Each	206.00	288.00	299.00
13	180 mm dia	Each	297.00	346.00	359.00
14	200 mm dia	Each	355.00	413.00	430.00
15	225 mm dia	Each	423.00	422.00	562.00
16	250 mm dia	Each	558.00	647.00	676.00
17	280 mm dia	Each	670.00	745.00	1071.00
18	315 mm dia	Each	849.00	931.00	1349.00
19	355 mm dia	Each	1102.00	1266.00	2311.00
20	400 mm dia	Each	1701.00	1920.00	2967.00
21	450 mm dia	Each	2415.00	2597.00	4907.00
22	500 mm dia	Each	3577.00	3846.00	5754.00
23	560 mm dia	Each	5053.00	5372.00	8408.00
24	630 mm dia	Each	7126.00	7893.00	10298.00
25	710 mm dia	Each	7456.00	8690.00	11885.00

Providing and Supplying standard lengths Polyethylene pipes with necessary jointing material

PE-100

For 6kg/sq.cm Unit Rate
(In Rs.)

63mm	RM	109.00
75mm	RM	157.00
90mm	RM	221.00
110mm	RM	326.00
125mm	RM	426.00
140mm	RM	536.00
160mm	RM	704.00
180mm	RM	888.00
200mm	RM	1105.00
225mm	RM	1403.00
250mm	RM	1723.00
280mm	RM	2161.00
315mm	RM	2736.00
355mm	RM	3501.00
400mm	RM	4526.00
450 mm	RM	5726.00
500 mm	RM	7080.00
560 mm	RM	8862.00
630 mm	RM	11220.00
710 mm	RM	13577.00
For 8kg/sq.cm		
63mm	RM	139.00
75mm	RM	198.00
90mm	RM	284.00
110mm	RM	426.00
125mm	RM	550.00
140mm	RM	689.00
160mm	RM	906.00
180mm	RM	1144.00
200mm	RM	1424.00
225mm	RM	1804.00
250mm	RM	2221.00
280mm	RM	2786.00
315mm	RM	3523.00
355mm	RM	4502.00
400mm	RM	5833.00
450 mm	RM	7389.00
500 mm	RM	9115.00
560 mm	RM	11442.00
630 mm	RM	14476.00
710 mm	RM	17510.00
For 10kg/sq.cm		
63mm	RM	169.00
75mm	RM	241.00
90mm	RM	345.00
110mm	RM	515.00
125mm	RM	663.00

140mm	RM	830.00
160mm	RM	1093.00
180mm	RM	1400.00
200mm	RM	1727.00
225mm	RM	2180.00
250mm	RM	2684.00
280mm	RM	3363.00
315mm	RM	4261.00
355mm	RM	5469.00
400mm	RM	7085.00
450 mm	RM	8938.00
500 mm	RM	11043.00
560 mm	RM	13833.00
630 mm	RM	17525.00
710 mm	RM	21217.00
For 12.5kg/sq.cm		
63mm	RM	200.00
75mm	RM	286.00
90mm	RM	414.00
110mm	RM	619.00
125mm	RM	797.00
140mm	RM	1000.00
160mm	RM	1317.00
180mm	RM	1681.00
200mm	RM	2073.00
225mm	RM	2625.00
250mm	RM	3229.00
280mm	RM	4049.00
315mm	RM	5126.00
355mm	RM	6570.00
400mm	RM	8518.00
450 mm	RM	10774.00
500 mm	RM	13282.00
560 mm	RM	16649.00
630 mm	RM	21068.00
For 16kg/sq.cm		
63mm	RM	538.00
75mm	RM	347.00
90mm	RM	500.00
110mm	RM	748.00
125mm	RM	967.00
140mm	RM	1209.00
160mm	RM	1600.00
180mm	RM	2037.00
200mm	RM	2515.00
225mm	RM	3181.00
250mm	RM	4088.00

280mm	RM	4919.00
315mm	RM	6217.00
355mm	RM	7962.00
400mm	RM	10322.00
450 mm	RM	13080.00
500 mm	RM	16144.00

10. Lowering laying Jointing HDPE pipes by heating to the end of pipes with the help
 12 of Teflon coated Electric mirror/heater and jointing will be done by semi automatic welding machine as per IS -7634 Part II. Including all cost of material and labour.

63mm	RM	16.00
75mm	RM	21.00
90mm	RM	23.00
110mm	RM	25.00
125mm	RM	31.00
140mm	RM	33.00
160mm	RM	36.00
180mm	RM	38.00
200mm	RM	41.00
225mm	RM	45.00
250mm	RM	52.00
280mm	RM	56.00
315mm	RM	62.00
355mm	RM	69.00
400mm	RM	81.00
450mm	RM	108.00
500mm	RM	130.00
560mm	RM	158.00
630mm	RM	179.00

C Solar Pumps

SN	Particulars	Unit	Rate For Supply	Rate For Installation & Commissioning	Total Rate
1	Supply, Installation & Commissioning of Solar surface Pump of the capacity 7.5 HP/7.5 KW at site	No.	5,60,000	90,000	6,50,000
2	Supply, Installation & Commissioning of Solar surface Pump of the capacity 10 HP/9.6 KW at site	No.	6,90,000	1,10,000	8,00,000
3	Supply, Installation & Commissioning of Solar surface Pump of the capacity 20 HP/19.2 KW at site	No.	13,42,909	1,90,000	15,32,909

PRICE Bid

Schedule of Rates for Community Irrigation Scheme

(As per Specifications & Scope of Work of Tender no. 15000 Dt 20-09-2018)

For design, supply, installation, and commissioning of all allied works under Solar Community Irrigation Scheme with five years comprehensive onsite warrantee at various sites of Chhattisgarh State as per scope of work as per following details –

S N	Discription of the work	Unit	Reference of SOR rates	Rate (in % above/belo w)
1	Supply installation and copmissioning of Solar Pumps	Nos.	As stated in tender doccuments	
2	All Civil Works	as per material list stated in tender documment		
3	All Works under Water Distribution network	as per material list stated in tender documment		

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of GST, roadworthy packing, loading, unloading, all types of incidental expenses, insurance, duties and any other job required to properly execute the work with 5 years warrantee as mentioned in the tender document.

Above rates quoted above are as per the requirement, specifications, and terms & condition mentioned in the tender document.

(No other cost will be claimed above the price quoted)

Name of the authorized Signatory :

Signature of the Authorized Signatory