RAJKOT MUNICIPAL CORPORATION

e - Tender No. RMC/ENGG/CZ/24-25/_____-

Bid Documents For
Construction of U.P.H.C. & City TB Center at Railnagar in Ward No. 03, RMC (Central Zone)

VOLUME - I

Milestone dates for e-tendering are as under	
1. Downloading of e-documents	26-06-24 to 18-07-24 up to 17:00 Hrs.
2. Pre-bid meeting in the O/o CE	05-07-24 at 16:00 Hrs.
3. Last date for online submission of e- Tender	18-07-24 upto 18:00 Hrs.
4. Submission of EMD, Tender fee and other Documents for verification by Regd. Post. A.D. / Speed Post	23-07-24 up to 18:00 Hrs.
5. Opening of Technical Bid	25-07-24 at 11:00 Hours onwards
6. Verification of submitted documents (EMD, e-Tender fee, etc.)	26-07-24 at 11:00 Hours onwards
7. Agency to remain present with original documents for verification	26-07-24 at 16:00 Hours
8. Opening of Price Bid (For Technically qualified bidders only)	29-07-24 at 11:00 Hours
9. Bid Validity	180 Days from the date the e-Tenders are opened

OFFICE OF THE ADDL. CITY ENGINEER,
BANDHKAM SHAKHA,
CENTRAL ZONE OFFICE,
RAJKOT MUNICIPAL CORPORATION,
DR. AMBEDKAR BHAWAN,
DHEBARBHAI ROAD,
RAJKOT-360001 (GUJARAT)

BID DOCUMENT FOR

Construction of U.P.H.C. & City TB Center at Railnagar in Ward No. 03,RMC (Central Zone)

PART-I

Section-1 Invitation to Bid, Instructions to Bidders and Formats.

Section-2 General Conditions of Contract

PART-II

Section-3 Technical Specifications

PART-III

Section-4 Bill of Quantities (With Price) (Excluding GST)

ABBREVIATIONS

Statement showing the details of abbreviations

Full Form	Abbreviation
ADDL. CITY ENGINEER	ACE
Operation and Maintenance	O&M
Net Present Value	NPV
Engineering Procurement and Construction	EPC
Paschim Gujarat Vij Co. Ltd.	PGVCL
Critical Path Method	CPM
Reinforced Cement Concrete	RCC
High Ground Level Reservoir	HGLR
Kilometer	KM
Mild Steel	MS
Bureau of Indian Standard	BIS
American Water Works Association	AWWA
American Petroleum Industries	API
Million Liter per Day	MLD
High Yield Strength Deformed bar	HYSD
Corrosion Residence Steel	CRS
Ordinary Portland Cement	OPC
American Standard for Testing of Material	ASTM
Flux Compensated Magnetic Amplifier	FCMA
Cost Insurance and Freight	CIF
Free On Board	FOB
EX – Works	EXW

PART - I SECTION - 1
INVITATION FOR BIDS

RAJKOT MUNICIPAL CORPORATION
e-TENDER NOTICE

The e-Tenders are invited with two bid system by e-Tendering from the experienced contractors registered in GWSSB / State Government / Central Government / Semi Government in appropriate class for below mentioned work:

Sr. No.	Name of work	a) Estimated cost in Rs. b) EMD c) E-TENDER fee d) Time limit for completion of work
1	Construction of U.P.H.C. & City TB Center at Railnagar in Ward No. 03,RMC (Central Zone) (TENDER No. RMC/ENGG/CZ/24-25/_____-)	a) Rs. 2,73,74,000/- b) Rs. 2,73,740/- c) Rs. 4,500/- d) 15 Months

Milestone dates for e-tendering are as under	
1. Downloading of e-documents	26-06-24 to 18-07-24 up to 17:00 Hrs.
2. Pre-bid meeting in the O/o CE	05-07-24 at 16:00 Hrs.
3. Last date for online submission of e- Tender	18-07-24 up to 18:00 Hrs.
4. Submission of EMD, Tender fee and other Documents for verification by Regd. Post. A.D. / Speed Post	23-07-24 up to 18:00 Hrs.
5. Opening of Technical Bid	25-07-24at 11:00 Hours onwards
6. Verification of submitted documents (EMD, e-Tender fee, etc.)	26-07-24 at 11:00 Hours onwards
7. Agency to remain present with original documents for verification	26-07-24at 16:00 Hours
8. Opening of Price Bid (For Technically qualified bidders only)	29-07-24 at 11:00 Hours
9. Bid Validity	180 Days from the date the e-Tenders are opened

1. All bidders must submit Bid security (EMD) as above either directly deposited in ICICI Bank Account No. 015305010638 (Rajkot Municipal Corporation) IFSC Code ICIC0000153 or submit at the below mentioned address in form of Demand Draft in favour of "Rajkot Municipal Corporation", Rajkot, from any Nationalized Bank or Scheduled Bank (except Co-operative Bank) in India. The receipt of professional tax paid for current year, address proof, tender appendix details and ID proof shall have to be submitted along with physical submission of required documents shall have to be done at the below mentioned address:

Office of the Addl. City Engineer,
Bandhkam Shakha,
Central Zone Office,
Rajkot Municipal Corporation,
Dr. Ambedkar Bhawan,
Dhebarbhai Road,
Rajkot-360001 (Gujarat)

2. The e-tender fee will be accepted in form of Demand Draft only in favor of "Rajkot Municipal Corporation" Rajkot, from any Nationalized or Scheduled Bank (except Co-operative Bank) in India and must be delivered to above address.

3. **The prequalification requirement is as under**:
   i) Financial Criteria:
   1. An average annual turnover of seven years should not be less than **50%** of tender

amount.

2. Working capital should not be less than **25%** of the estimated amount.
3. Bidder must have minimum **"B" Class** registration
4. Minimum amount of solvency should be **Rs. 35.00 lakhs.**

ii) Experience Criteria:

The bidder should possess following minimum experience:

1. Bidder should have completed at least one work of similar nature amounting to **40% OR** two works amounting to **30%** of tender amount in last seven years either in government or Semi-government as a main contractor.

NOTE: - Similar works means should have constructed multistoried building works of at least G/P+1 storied having RCC Columns, Beams & Slab including infrastructure in last Seven years ending on 31.03.2024. (Experience of having successfully completed similar of work as a prime contractor only) during last SEVEN years ending last day of the month previous to the one in which bids are invited.

2. Bidder should have enough machinery and experienced personnel to supervise the work.
3. Civil Agency (lead agency) must be do MOU with electrical contractor for the electrical / HVAC work.
   - ✓ Electrical contractor must have valid Electrical Contractor License.
   - ✓ The bidder must have valid registration in "E-1" Class and above in the Electrical Department of R&B, Govt. of Gujarat.
   - ✓ Electrical contractor must have experience of the similar nature of work in the Govt. and/or Semi Govt. Dept.

   Civil Agency (lead agency) must submit all above documents and MOU latter in physical submission, with duly sign and stamp.

Note: Enhancement factor at 10 % per year will be applicable to arrive at average annual turnover and finalize the magnitude of work done in last seven years.

Sr	Year	Enhance factor
1	Current Year (2024-25)	1.00
2	Current Year - 1 (2023-24)	`1.10
3	Current Year - 2 (2022-23)	1.21
4	Current Year - 3 (2021-22)	1.33
5	Current Year - 4 (2020-21)	1.46
6	Current Year - 5 (2019-20)	1.61
7	Current Year - 6 (2018-19)	1.77
8	Current Year - 7 (2017-18)	1.95

4. The contractor shall have to **quote their rates without GST** and including other taxes. The invoice should be submitted by contractor showing the breakup of GST in the bill.

   The contractor shall have to purchase the material required for this tender work, only from the supplier having registered GST Number.

   RMC will not be responsible to pay any amount towards GST if the material is purchased from the unregistered supplier / not having GST Number.

   The amount of GST shall be reimbursed by RMC to the contractor on submission of valid proof or documentation of the actual payment made to the Department of GST.

5. The bidder(s) submitting the tender shall also have to submit the copy of ESIC & EPF Registration document along with the other documents, duly self-attested, failing which, the tender of such bidder(s) will be considered as non-responsive and their online price bid will not be opened.

6. The Tender of those bidder(s) those who fails to submit the required documents for verification within the stipulated date and time, will be treated as non-responsive and their Price Bid will not be opened. The physical submission of required documents received after the prescribed date and

time will be out rightly rejected.

7. The bidder should not have been Black Listed, suspended, terminated, backed out, debarred & delisted by any Municipal Body / Urban Local Body / Development Authority in any State Government Body or undertaking / any department or undertaking of Government of India, since inception of the firm / Company. Such a case will be rejected out rightly. A Declaration in this regard on Rs. 300/- Stamp Paper duly Notarized shall have to be submitted as per Annexure along with the tender documents. Submission of the bid document without such Notarized declaration will be rejected out rightly.

8. The bidder should provide accurate information on any litigation history or arbitration resulting from contracts completed or under execution by him over the last ten years. This should also include such cases, which are in process / progress. A consistent history of awards against the bidder may result in failure of the bid. In case the bidder has not provided such information and has come to the notice of the authority, the tender will be rejected at what so ever stage and in such case all the losses that will arise out of this issue will be recovered from the bidder and he will not have any defense for the same.

9. After opening of Technical Bid, the procedure for the pre-qualification shall be adopted and the Price Bid of only successful qualified bidder shall be opened for final evaluation of the contract. The decision of Municipal Commissioner regarding the pre- qualification shall be final and binding to all the bidders.

10. Conditional Tenders will be out rightly rejected.

11. If no agency remains present and are no points for Pre bid meeting, "NIL" minutes to be considered and the same will not be uploaded.

12. Commissioner, Rajkot Municipal Corporation, Rajkot, reserves the right to accept / reject any or all e-tender(s) without assigning any reasons thereof.

ADDL. CITY ENGINEER
Rajkot Municipal Corporation

ELIGIBILITY CRITERIA

1. **Experience Criteria**:

The bidder should possess following minimum experience:

1. Bidder should have completed at least one work of similar nature amounting to **40% OR** two works amounting to **30%** of tender amount in last seven years either in or Semi-government as a main contractor.

   NOTE:- Similar works means should have constructed multistoried building works of atleast G/P+1 storied having RCC Columns, Beams & Slab including infrastructure in last Seven years ending on 31.03.2024 (Experience of having successfully completed similar of work as a prime contractor only) during last SEVEN years ending last day of the month previous to the one in which bids are invited.
2. Bidder should have enough machinery and experienced personnel to supervise the work.

2. **Financial Criteria**

(1) An average annual turnover of seven financial years should not be less than **50%** of estimated tender amount.
(2) Working capital should not be less than **25%** of the estimated tender amount.
(3) Solvency must not be less than **Rs. 35.00 Lakh**
(4) Available bid capacity-ABC must be more than the estimated tender amount. The bidding capacity shall be worked out using the following formula:

Bidding capacity = [2 * **A** * **N**] – **B** =_____(to be filled by Applicant)

Where,

A = Maximum value of works executed in any one year during the last seven years (updated to ……* price level) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which tenders are invited.

B = Value (…* price level) of existing commitments and on-going works to be completed during that next **N** year (period of completion of the works for which the tenders are invited)

3. **Enhancement Factor**

Following enhance factor for respective year will be considered to arrive at current financial year:

Sr	Year	Enhance factor
1	Current Year (2024-25)	1.00
2	Current Year - 1 (2023-24)	1.10
3	Current Year - 2 (2022-23)	1.21
4	Current Year - 3 (2021-22)	1.33
5	Current Year - 4 (2020-21)	1.46
6	Current Year - 5 (2019-20)	1.61
7	Current Year - 6 (2018-19)	1.77
8	Current Year - 7 (2017-18)	1.95

4. Litigation History

The bidder should provide accurate information on any litigation history or arbitration resulting from contracts completed or under execution by him over the last seven years. This should also include such cases, which are in process/progress. A consistent history of awards against the bidder or any partner of a joint venture may result in failure of the bid. In case the bidder has not provided such information and has come to the notice of the Authority, the tender will be rejected at whatsoever stage and in such case all the losses that will arise out of this issue will be recovered from the Bidder/contractor and he will not have any defense for the same.

5. Even though the bidders meet the above criteria, they are subject to be rejected, if they have:

Misleading or false representation made in the form, statements and attachments Submitted And / Or having poor performance record such as abandoning the work, improper completion of contract, inordinate delays in completion, litigation history, financial failures, etc.

6. Brand names

Specific reference in the specifications any materials by manufacturer's name or catalogue shall be constructed as establishing a standard or quality and performance and not as limiting competition, and the Bidder in such cases, will not at his option freely use only other product, provided that it ensures an equal of higher quality than the standard mentioned and meets Corporation's prior approval before 30 days.

ADDL. CITY ENGINEER
Rajkot Municipal Corporation

Name and signature of Bidder

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDER

IT 1. GENERAL

The contract documents may be secured in accordance with the Notice Inviting E- TENDER for the work called. The work shall include supply of materials necessary for construction of the work.

IT 2. INVITATION TO E-TENDER

The Rajkot Municipal Corporation hereinafter referred as the Corporation will receive e-Tenders for the work of as per the specifications and schedule of prices in the e- Tender document. The e-Tenders shall be opened online as specified in the e-Tender notice in the presence of interested Bidders or their representatives. The Corporation reserves the right to reject the lowest or any other or all e-Tenders or part of it which in the opinion of the Corporation does not appear to be in its best interest, and the Bidder shall have no cause of action or claim against the Corporation or its officers, employees, successors or assignees for rejection of his e-Tender.

IT 3. LANGUAGE OF e-TENDER

E-TENDERs shall be submitted in English, and all information in the e-Tender shall also be in English, Information in any other language shall be accompanied by its translation in English. Failure to comply with this may make the e-Tender liable to rejection.

IT 4. QUALIFICATIONS OF BIDDERS

A. The Bidders shall abide by the laws of the Union of India and of Gujarat State and legal jurisdiction of the place where the works are located.

B. The Bidder shall furnish a written statement of financial and technical parameters with details and documents along with his e-Tender which contains namely as below:

i. The Bidder's experience in the fields relevant to this contract.
ii. The Bidder's financial capacity/resources and standing over at least 7 (Seven) years.
iii. The Bidder's present commitments (Jobs on hand).
iv. The Bidder's capability and qualifications of himself and his regular staff etc.
v. Plants and Machinery available with the Bidder for the work e-Tendered.

C. The Bidder shall furnish original documents on the date mentioned in tender notice. The bid for those bidder will be treated as non-responsive who failing to produce original documents on specified date.

IT 5. e-TENDER DOCUMENTS

The e-Tender documents and drawings shall comprehensively be referred to as e- TENDER document. The several sections form in the document are the essential parts of the contract and a requirement occurring in one shall be as binding as though occurring in all, they are to be taken as mutually, explanatory and describe and provide for complete works.

IT 6. EXAMINATION BY BIDDERS

A. At this own expense and prior to submitting his e-Tender, each Bidder shall (a) examine the Contract Documents, (b) visit the site and determine local conditions which may affect the work including the prevailing wages and other pertinent cost factors, (c) familiarize, himself with all central, state and local laws, ordinance, rules regulations and codes affecting the material supply including the cost of permits and licenses required for the work and (d) correlate his observations, investigations, and determinations with the requirements of the e-TENDER Documents, site & subsoil investigation.

B. The e-Tender is invited on **.... % rate** and contractor shall have to quote his price on % bases **above or below in the schedule -B / Price Schedule**. The works shall have to be completed in all respect as stated in the e-Tender document to the satisfaction of the Corporation.

C. The following comprises in Contract Documents at a price of **Rs.4,500=00 e-TENDER Document:**

Part-I

1. Notice inviting Bidders.
2. Instructions to the Bidder.
3. Formats

4. General conditions of contract

Part-II

Technical specifications

Part-III

a. Bid Form (With Price)
b. Preamble to Price schedule
c. Price Schedule (Schedule-B)

D. Copy of the E-TENDER Document should be completed, checked in a responsible manner, digitally signed, and submitted. Security Bond shall be submitted in person by the stipulate date, which shall form the e-Tender.

The e-Tender is required to complete with all the pages in which entries are required to be made by the Bidder are contained in the e-Tender documents and the Bidder shall not take out or add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda issued pursuant to Clause IT.17 hereof.

IT 7. EARNEST MONEY DEPOSIT:

A. Each Bidder must submit a receipt of deposit as Tender guarantee towards **Earnest money** amounting to **Rs. 2,73,740/-** in the form of crossed Demand Draft / Fixed Deposit Receipt of 6 Months Validity, if required it should be extended in favor of "Rajkot Municipal Corporation", from any Schedule Bank or Nationalized Bank (except Co-operative Bank) in India acceptable to owner payable at Rajkot. The Tender Bond, shall be valid for a period of not less than 180 Days from the date the e-Tenders are opened and shall comply with the requirements for Bond as stipulated in the General conditions of contract. The Tender guarantee bond will be held by the owner as a guarantee that the Bidder, if awarded the contract, will enter into the contract agreement in good faith and furnish the required bonds. Any e-Tender not accompanied by a Tender guarantee in the form of earnest money deposited for the sum stipulated in the e-Tender Document will be summarily rejected.

B. The Earnest Money Deposit will be refunded to the unsuccessful Bidders after an award has been finalized.

C. The Earnest Money Deposit (Tender Guarantee) will be forfeited in the event, the successful Bidder fails to accept the contract and fails to submit the "Performance Guarantee Bonds to the Owner as stipulated in this e-Tender documents within ten days. (10) days after receipt of notice of award of contract.

D. The Earnest Money Deposit of the successful Bidder shall be returned after the performance guarantee bond, as required, is furnished by the contractor.

E. No interest shall be paid by the owner on any e-Tender guarantee.

IT 8. INCOME TAX CLEARANCE CERTIFICATE: (DELETED):

Latest Income Tax clearance Certificates must accompany with the e-Tender without which the e-Tender is liable to be summarily rejected. The Income Tax Clearance Certificate obtained from the Income Tax Officer shall clearly indicate the Income Tax Pan No/Circle/Ward, District and the reference number of the assessment along with the assessment year.

IT 9. PREPARATION OF e-TENDER DOCUMENTS

Bidders are required to note the following while preparing the e-TENDER Documents:

A. e-TENDER shall be submitted on the e-TENDER form bound here in English. All statements shall be properly filled in. Numbers shall be stated both in words and in figures where so indicated.

B. All entries or prices and arithmetic shall be checked before submission of the e- TENDER. If there is discrepancy between the rates quoted in figures and in words, the rates expressed in words shall be considered as binding.

C. Each e-Tender shall be accompanied by the prescribed e-Tender security bond and other required documents and drawings. All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stated below their signature.

D. Variation to the contract Documents requested by the Bidder may be affixed and duly signed and stamped. Such variations may be approved or refused by the Corporation is not obliged to give reason for his decisions.

IT 10. SUBMISSION OF e-TENDER DOCUMENTS

Bidders are requested to submit the e-TENDER Documents on following lines.

A. Volume containing following documents:
   I. Earnest Money Deposit.
   II. Certificates as registered contractor in appropriate class with Government of Gujarat or appropriate authority.
   III. Bidder's financial capability statement including last three years Income tax returns, balance sheet, duly signed by registered chartered account.
   IV. Bidder's experience in the field relevant to this contract.
   V. A list of the equipment the Bidder possesses and that which he proposed to acquire and use for the purpose related to the work.

The time limit for receipt of e-Tender shall strictly apply in all cases. The Bidders should therefore ensure that their e-Tender is received by the competent authority **The Rajkot Municipal Corporation** at before expiry of the time limit. No delay on account of any cause for receipt of e-Tender shall be entertained.

The e-Tender must contain the name address of residence and place of business of the person or persons submitting the e-Tender and must be digitally signed.

e-TENDER by partnership firm must be furnished with the full names and addresses of all partners and be signed by one of the members of the partnership or by a legally authorized representative holding power of attorney followed by signature and designation of the person of person signing.

e-TENDER by Corporations/Companies must be signed with the legal name of the Corporation/Companies by the president/or by the secretary or other person or persons legally authorized to bind the Corporation/Company in the matter.

IT 11 TENDER VALIDITY PERIOD

The validity period of the e-Tender submitted for this work shall be of 180 Days from the date of opening of the e-Tender and that the Bidder shall not be allowed to withdraw or modify the e-Tender offer on his own during the validity period. The Bidder will not be allowed to withdrawn the e-Tender or make any modifications or additions in the terms and conditions on his own e-Tender. If this is done then the owner shall, without prejudice to any other right or remedy, be at liberty to reject the e-Tender and forfeit the earnest money deposit in full.

IT 12 GENERAL PERFORMANCE DATA

Bidder shall present all the information which sought for in the e-Tender document in form of various schedules if given. e-TENDER may not be considered if left blank or the schedules are not properly filled in.

IT 13 SIGNING OF e-TENDER DOCUMENTS

If the Tender is made by an individual, it shall be signed with his full name above his current address. If the Tender is made by a proprietary firm, it shall be signed by the proprietor above his name and the name of his firm with his current address.

If the e-Tender is made by a firm in partnership, it shall be signed by all the partners of the firm above their full names and current address, or by a partner holding the power of attorney for the firm, in which case a certified copy of the power of attorney shall accompany the e-TENDER. A certified copy of the partnership deed, current addresses of all the partners of the firm shall

also accompany the e-Tender.

If the e-Tender is made by a limited company or a limited corporation, it shall be signed by a duly authorized person holding the power of attorney, shall accompany the e-Tender. Such limited company or corporation may be required to furnish satisfactory evidence of its existence before the contract is awarded.

If the e-TENDER is made by a group of firms, the sponsoring firm shall submit complete information pertaining to each firms in the group and state along with the bid as to which of the firms shall have the responsibility for e-Tendering and for completion of the contract documents and furnish evidence admissible in law in respect of the authority to such firms on behalf of the group of firms for e- Tendering and for completion of contract documents. The full information and satisfactory evidence pertaining to the participation of each member of the group of firms in the e-Tender shall be furnished along with the e-Tender.

All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stared below their signatures. All the signatures in the e-Tender document shall be dated.

IT 14 WITHDRAWAL OF TENDERS

If, during the tender validity period, the Bidder withdraws his Tender, Tender security (Earnest Money) shall be forfeited and Bidder will be debarred for next three years to quote in R.M.C.

IT 15 INTERPRETATIONS OF e-TENDER DOCUMENTS

Bidders shall carefully examine the e-TENDER Document and fully inform themselves as to all the conditions and matters which may in any way affect the work or the cost thereof. If a Bidder finds discrepancies, or omission from the specifications or other documents or should be in doubt as to their meaning, he should at once address query to the ADDL. CITY ENGINEER, R.M.C. The result of interpretation of the e- TENDER will be issued as addendum.

IT 16 ERRORS AND DISCREPANCIES IN e-TENDERS

In case of conflict between the figures and words in the rates the rate expressed in words shall prevail and apply in such cases.

IT 17 MODIFICATION OF DOCUMENTS

Modification of specifications and extension of the closing date of the e-Tender, if required will be made by an addendum. Each addendum will be made available online to all Bidders. These shall form a part of e-Tender. The Bidder shall not add to or amend the text of any of the documents except in so far as may be necessary to comply with any addendum.

ADDENDA

Addenda form part of the Contract Documents, and full consideration shall be given to all Addenda in the preparation of e-Tender. Bidders shall verify the number of Addenda issued, if any and acknowledge the receipt of all Addenda in the e-TENDER Failure to so acknowledge may cause the e-Tender to be rejected.

A. The Owner may issue Addenda to advise Bidders of changed requirements. Such addenda may modify previously issued Addenda.

B. No addendum may be issued after the time stated in the notice inviting e - Tenders.

IT 18 TAX AND DUTIES ON MATERIALS

All charge on account of excise duties, Central / State, sales tax, work contract tax and other duties etc. on materials obtained for the works from any source shall be borne by the contractors. No (P) or 'C' or 'D' form shall be supplied.

IT 19 EVALUATION OF E - TENDERS

While comparing e-Tenders, the Rajkot Municipal Corporation shall consider factors like price offer is workable with the market price, efficiency and reliability of construction method proposed, compliance with the specifications, relative quality, work done in past with Rajkot Municipal Corporation or other Government Organizations, litigation issues etc. Evaluation

criteria specifically mentioned in the specification will also be taken into consideration in the evaluation of e- Tenders.

IT 20 TIME REQUIRED FOR COMPLETION

The completion period mentioned in this schedule is to be reckoned from the date of notice to proceed. Total completion period is **15 Months** from the date of issue of notice to proceed and contractor should adhere to this completion time. ~~Monsoon period from 1st July to 30th September will be considered as non working period and hence excluded in time limit~~.

IT 21 POLICY FOR TENDER UNDER CONSIDERATION

TENDER shall be termed to be under consideration from the opening of the e - Tender until such time any official announcement or award is made.

While e-Tenders are under consideration, Bidders and their representative or other interested parties are advised to refrain from contacting by any means any corporations' personnel or representatives on matters related to the e-Tenders under study. The Corporation's representatives if necessary, will obtain clarification on e- Tenders by requesting such information from any or all the Bidders, either in writing or through personal contact, as may be necessary. The Bidder will not be permitted to change the substance of his e-Tender after e-Tenders have been opened. This includes any post Tender price revision. Non-compliance with his provision shall make the Tender liable for rejection.

IT 22 PRICES AND PAYMENTS

The Bidder must understand clearly that the prices quoted are for the total works or the part of the total works quoted for and include all costs due to materials, labour, equipment, supervision, other services, royalties, taxes etc. and to include all extra to cover the cost. No claim for additional payment beyond the prices quoted will be entertained and the Bidder will not be entitled subsequently to make any claim on any ground.

IT 23 PAYMENT TERMS

The terms of payment are defined in the General Conditions of Contract and Technical specifications. The Corporation shall not under any circumstances relax these terms of payment and will not consider any alternative payment terms. Bidders should therefore in their own interest note this provision to avoid rejection of their e- Tenders.

IT 24 AWARD

Award of the contract or the rejection or e-TENDERs will be made during the Tender validity period. A separate Schedule-B (Price Schedule) is given. The contractors are requested to quote their price offer **in % below or above on the given price in the schedule-B of Price Schedule only.**

A. After all contract contingencies are satisfied and the Notice of Award is issued, the successful Bidder shall execute the Contract Agreement within the time stated and shall furnish the Bond as required herein. The contract Agreement shall be executed, in form stipulated by the Owner.

B. If the Bidder receiving the Notice of Award fails or refuses to execute the Contract Agreement within the stated time limit or fails or refuses to furnish the Bond as required herein. The Owner may annul his award and declare the e- Tender security forfeited and will take action as deemed fit.

C. A corporation, partnership firm or other consortium acting as the Bidder and receiving the award shall furnish evidence of its existence and evidence that the officer signing the contract agreement and Bonds for the corporation, partnership firm or other consortium acting as the Bidder is duly authorized to do so.

IT 25 SIGNING OF CONTRACT

The successful Bidder shall be required to execute the contract agreement within 10 days of receipt of intimation to execute the contract, failing which the Corporation will be entitled annul to the award and forfeit the Earnest Money Deposit. The person to sign the contract document shall be person as detailed in Article IT.13 (signing of e-Tender documents).

IT 26 DISQUALIFICATION

A e-Tender shall be disqualified and will not be taken for consideration if,

(a) The Tender fee and Tender Earnest Money Deposit is not deposited in full and in the manner as specified as per Article IT.7 i.e. Earnest Money Deposit.
(b) The e-Tender is in a language other than English or does not contain its English Translation in case of other language adopted for e-Tender preparation.
(c) The e-Tender documents are not signed by an authorized person (as per Article IT. 13 i.e. signing of e-Tender documents).
(d) The general performance data for qualification is not submitted fully (as per Article IT 12 i.e. General performance Data).
(e) Bidder does not agree to payment terms defined as per Article IT. 23 i.e. payment terms.

A. A e-Tender may further be disqualified if,

(a) Price variation is proposed by the Bidder on any principle other than those provided in the e-TENDER Documents.
(b) Completion schedule offered is not consistent with the completion schedule defined and specified in e-Tender document.
(c) The validity of e-Tender bond is less than that mentioned in Article IT. 11 i.e. e - Tender validity period.
(d) Any of the page or pages of e-Tender is/are removed or replaced.
(e) Any conditional tender.

IT 27 PERFORMANCE GUARANTEE (SECURITY DEPOSIT)

As a contract security the Bidder to whom the award is made shall furnish a performance guarantee (Security deposit) for the amount of **5%** of the contract price to guarantee the faithful performance, completion and maintenance of the works of the contract in accordance with all conditions and terms specified herein and to the satisfaction of the Engineer-in-charge and ensuring the discharge of all obligations arising from the execution of contract in the forms mentioned below:

A fixed deposit receipt of any Schedule Bank or Nationalized Bank (except Co- operative Bank) duly endorsed in favour of the **Rajkot Municipal Corporation, Rajkot.**

The performance guarantee shall be delivered to the Corporation within ten (10) days of the notice of award and at least three (3) days before the contract agreement is signed unless otherwise specified by the Engineer-in-charge. Alternatively, the contractor may at his option deposit an amount of **2.5%** of the value of the contract price within ten days and the balance **2.5%** to be recovered in installments through deduction @ the rate of 10% from the running account bills. It is further clarified that Performance Guarantee (SD) for extra work will also be recovered @ 10% from the bill of extra work i.e. works beyond tender amount.

On due performance and completion of the contract in all respects, **THE PERFORMANCE GUARANTEE (SECURITY DEPOSIT) WILL BE RELEASED TO THE CONTRACTOR WITHOUT ANY INTEREST AFTER DEFECT LIABILITY PERIOD IS OVER.**

IT 28 STAMP DUTY

The successful Tenderer shall have to enter into an agreement on a non-judicial stamp paper of amount as per Stamp Duty Act in the form of the agreement approved by the Corporation. The cost of stamp paper and adhesive stamp shall be borne by the contractor.

IT 29 BRAND NAMES

Specific reference in the specifications to any material by manufacturer's name, or catalogue shall be constructed as establishing a standard or quality and performance and not as limiting competition and the Bidder in such cases, may at his option freely use only other product, provided that it ensures an equal of higher quality than the standard mentioned and meets Corporation approval.

IT 30 NON-TRANSFERABLE

e-TENDER documents are not transferable.

IT 31 COST OF e-Tendering

The owner will not defray expense incurred by Bidders in e - Tendering.

IT 32 EFFECT OF e-Tender

The e-Tender for the work shall remain for a period of 180 Days from the date of opening of the e-Tenders for this work and that the Bidder shall not be allowed to withdraw or modify the offer in his own during the period. If any Bidder withdraws or makes any modification or additions in the terms and conditions of his own e-Tender, then the Corporation shall, without prejudice to any other right or remedy, be at liberty to reject the e-Tender and forfeit the earnest money in full.

IT 33 CHANGE IN QUANTITY

The Corporation reserves the right to waive any information in any e-Tender and to reject one or all e-Tenders without assigning any reasons for such rejection and also to vary the quantities of items or group as specified in the scheduled of prices as may be necessary.

IT 34 NEW EQUIPMENT AND MATERIAL

All materials, equipment and spare parts thereof shall be new, unused and originally coming from manufacturer's plant to the Corporation. The rebuilt or overhauled equipment/materials will not be allowed to be used on works.

IT 35 RIGHTS RESERVED

The owner reserves the right to reject any or all e-Tenders, to waive any informality or irregularity in any e-Tender without assigning any reason. The owner further reserves the right to withhold issuance of the notice to proceed, even after execution of the contract agreement. No payment will be made to the successful Bidder on account of such withholding. The owner is not obliged to give reasons for any such action.

IT 36 ADDITIONAL RIGHTS RESERVED

The Commissioner, Rajkot Municipal Corporation, reserves right to reduce the scope of work & split the e-Tender on two or more parts without assigning any reason even after the awards of contract.

IT 37 MOBILIZATION ADVANCE

No mobilization advances or advance on machinery will be given.

IT 38 CONDITIONAL e-Tenders

The scope of work is clearly mentioned in the e-Tender documents. The contractor shall have to carry out the work in accordance with the detail's specifications. No condition will be accepted. The conditional e-Tender will liable to be rejected.

IT 39 CESS & REGISTRATION:

For the welfare of labour working under construction Industry, the agency shall have to take the registration with competent authority as per Circular No. CWA/2004/841/M-3 dated 30-01-2006 of Government of Gujarat. Rajkot Municipal Corporation will deduct prevailing CESS of the value of work and will deposit the same in Government.

IT 40 ESI REGISTRATION:

The contractors who are liable to be registered under ESI Act must possess ESI registration number at the time of filling of tender. The agency should follow all the rules and regulations of ESI Act as per prevailing norms.

IT 41 PROFESSIONAL TAX

The bidder shall have to pay the Professional Tax for current financial year imposed by Government of Gujarat, and also the bidder shall have to produce Enrollment Certificate for the same.

IT 42 PF CODE:

The contractors who are liable to be registered under EPF Act, 1950 must possess EFP code at the time of filling of tender. The agency should follow all the rules and regulations of the Act as

prevailing currently.

IT 43 LABOUR LICENSE:

The contractors who are liable to be registered under Contract Labour Act, 1970 must possess online Labour License at the time of filling of tender. The agency should follow all the rules and regulations of the Act as prevailing currently.

IT 44 FILLING OF e-TENDER

The bidder shall have to fill all the details required in on-line bidding form of e- Tender. Incomplete OR inappropriate OR wrong information filled may cause the e- Tender to be rejected.

Addl. / Asst. Engineer	**Dy. Ex. Engineer**	**ADDL. CITY ENGINEER**
R.M.C.	**R.M.C.**	**R.M.C.**

Signature of Contractor with Seal

F O R M A T S

Financial & Other Statements

Information / Details to be submitted by the Bidders in the Performa mentioned under Statement no 1 to 9. All the documents submitted herewith as supporting documents shall be duly attested and certified true copy.

STATEMENT NO-1

DECLARATION

I / We_____hereby declared that I am / We partner(s) are not black listed or Terminated or Debarred or suspended, backed out, delisted or connected with firm black listed or terminated or debarred or suspended or backed out or delisted in any States, CPWD/ MES/ Railways or any Government, Semi- Government or Private body since the inception of the firm / Company. Also, no Police complaint is lodged against the firm / company or Staff deployed by me / us.

At present I am / we are registered as approved contractor(s), firms in _____ _____State, CPWD / MES / Railways.

I, owner / We, the partners of this firm, hereby give an undertaking that we are jointly and severally responsible to meet all the liabilities ever and above the business of this firm and make good the above financial loss sustained by the Rajkot Municipal Corporation as a result of our abandoning the works entrusted to us.

I further undertake that if above declaration proves to be wrong/ incorrect or misleading, our tender/ contract stands to be cancelled/ terminated.

Date:
Place:

_____
Signature of Authorized Person

With Notarised

STATEMENT NO-2

APPLICABILITY OF PROVIDENT FUND AND MISCELLANEOUS PROVISIONS ACT 1952

Successful bidder i.e. the agency whose tender is accepted by the RMC shall have to comply the necessary formalities under the employees provident fund and Miscellaneous Provisions Act, 1952 as Contributory Provident Fund Scheme is applicable to labourers engaged in construction activity and shall have to submit proofs regarding deduction of provident fund and other dues and depositing the same with government department under the act and the scheme regularly on monthly basis failing which no running / final bill payment will be made by the RMC to the contractor in any circumstances.

A certificate to the above effect has to be given by the contractor as under.

Declaration Of
Depositing Provident Fund contribution

This to certify that we have deducted the employees' P.F. and deposited the same along with employer's contribution towards provident fund on labour charges / wages paid by us to the laborers engaged for the work of _____ _____with Provident Fund Authority under our Provident Fund Code No._____

We produce herewith the copies of the challans for the provident fund deduction and contribution deposited as mentioned above.

Date: **Seal and Signature of the Bidder**

CURRICULAM VITAE

Sr.No.	Details of person	
1.	Name	
2.	Age	
3.	Qualifications	
4.	Experience in Project Related field	
5.	Other experiences	
6.	Employment Record.	

Sr. No.	Period From - To	Organization under which work	Status /Position in the

Note:

(1) Separate sheet for each person to be furnished as above.

(2) The contractor's Project Team should consist of persons in the following disciplines.

a) Senior Engineer with experience of Building work.
b) Senior material Engineer.
c) Senior Quantity Surveyor.
d) Project management expert.
e) Site in charge

STATEMENT – 4

INFORMATION REGARDING FINANCIAL CAPACITY OF THE CONTRACTORS

Sr.	Details	Amount (Rs. in lakhs)	Remarks
1.	Solvency		A Banker's Certificate of current financial year may please be attached.
2.	Annual Turnover for the last seven		Certified true copy to be attached
3.	Price of biggest (building work) job		Certified true copy to be attached

STATEMENT NO. – 4/A

BIDDER'S FINANCIAL CAPACITY

Sr. No.	Financial Year	Annual Turnover in Engineering Project Rs.	Net worth Rs.	Net Cash Rs.	Working Capital Rs.
1	2024-2025				
2	2023-2024				
3	2022-2023				
4	2021-2022				
5	2020-2021				
6	2019-2020				
7	2018-2019				

Note:-

1) Figures to be taken from audited balance sheets. Duly certified attested true copy
2) Copies of the balance sheet to be attached.
3) The bidder shall have to provide that for a period of at least 15 Months the bidder has ability to sustain negative cash balance and how he proposes to meet with the same.
4) Cash Plan / Cash flow Statement.

STATEMENT NO. – 4 / B

AVAILABLE BID CAPACITY

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Value of works executed in Rs. Crores.							

The available bid capacity will be worked out as follows.

Available bid capacity = (A x N x 2) – B, where

A = Maximum of updated total amount of work executed in any one year of the last five financial years.

B = The amount of the existing commitments and ongoing works to be discharge during time interval of N years from the bid due date.

N = Number of years prescribed for completion of the proposed works

STATEMENT NO. – 5

LIST OF SINGLE PROJECT WORK OF NOT LESS THAN 40% OF THE ESTIMATED COST COMPLETED DURING THE LAST SEVEN YEARS.

Sr. No.	Year of Const. work	Name of Project	Name of owner & contact person of the project, address, phone	Total cost of the work	Total value of work don e	Date of starting work	Date of Actual completion of work
1	2	3	4	5	6	7	8
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Note: Certificate from the owners in support of above works may be enclosed with this statement.

STATEMENT NO. 5/ A

Detailed information of similar type of work costing not less than 30% of tender amount completed with good quality and workmanship in the past seven years.

Name of Contractor: _____

Sr. No.	Name of work	Name of client	Estimated cost of work (Rs. Lakhs)	Tendered amount Rs. (Lakhs)	Date of award of contract	Target date of completion	Actual date of completion	Reason for delay	Amount of work done during last seven years preceding this tender (Rs. Lakhs).							Amount of work done after March 2024 (Rs. Lakhs	Remarks
									2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25		

Note: Certificate from the owners in support of above works may be enclosed with this statement.

STATEMENT NO – 5/B

DETAILS OF IMPORTANT CONSTRUCTION PROJECTS

Sr. No.	Name of Project	Estimated cost	Prescribed time of performance		Actual Completion		Actual Completion Cost Rs.	Name, address and
			Start date	Completion Date	Start Date	Completion Date		
1	2	3	4	5	6	7	8	9

Note: Certificate from the owners in support of above works may be enclosed with this statement.

STATEMENT NO. – 5/C

DETAILS OF ONGOING PROJECT

Sr. No	Name of project	Value of remaining work Rs. in lakhs.	Start date	Likely date of completion	Name, address, telephone, fax no. of project authority and contact person.

STATEMENT NO.-6

DETAILS OF PLANT & MACHINERY TO BE DEPLOYED ON THIS WORK

Name of the contractor/company_____

Sr. No	Name of plants/machinery	Nos. available (with make & year)	Nos. proposed to be deployed for this project	Present location	Present value of plant/ machineries
1	2	3	4	5	6

Note:

Plant / machineries which are proposed to be procured shall have to be procured at the earliest after award of the work and before the start of the work.

STATEMENT NO. 7

METHOD STATEMENT AND WORK PLAN

The Bidder shall have to provide a brief write up to be enclosed with the "Technical Bids" covering his approach and methodology to handle the project construction activities including his details work plan. The brief shall include the following aspects.

Sr. No.	Components	
1.	Methodology	
2.	Construction equipment availability and plan of deployment.	
3.	PERT / Construction chart / Bar chart.	

Application Form (1)
General Information

All individual firms and each partner of a consortium applying for qualification are requested to complete the information in this form. Nationality information to be provided for all owners or applicants who are partnerships or individually-owned firms.

Where the Applicant proposes to use named subcontractors for critical components of the works, or for work contents in excess of 10 percent of the value of the whole works the following information should also be supplied for the specialist subcontractor(s).

1.	Name of Firm	
2.	Head office address	
3.	Telephone	Contact
4.	Fax	Telex
5.	Place of incorporation/registration	Year of incorporation/ registration

	Nationality of owners	
	Name	**Nationality**
1.		
2.		
3.		
4.		
5.		

Name of Bidders officers / Persons to be contacted			
Name.	**Address**	**Phone Nos.**	**Fax.**

Application Form (1A)

Structure and Organization

The applicant is an individual a proprietary firm a firm in partnership a Limited Company or Corporation a group of firms/consortium (if Yes, give completion information in respect of each partner)	
Attach the Organization Chart showing the structure of the organization including the names of the Directors and position of officers	
Number of years of experience:	
As a Prime Contractor (contractor shouldering major responsibility in own country other countries (specify country)	
in a consortium in own country other countries (Specify country)	
As a sub-contractor(specify main contractor) in own country other countries (Specify country)	
4. Name and address of any associates the applicant has in India (in case the applicant happens to be from foreign country) who are knowledgeable in the procedures of customs, immigration, taxes and other information necessary to do the work.	
For how many years has your organization been in business of similar work under its present name? What were your fields when your organization was established? Whether any new fields were added in your organization? And if so, when?	

5. Were you ever required to suspend construction for a period of more than six months continuously after you started? If so, give the name of project and give reasons thereof.	
6. Have you ever left the work awarded to you incomplete? If so, give name of project and reasons for not completing work.	
In which fields of civil engineering construction do you claim specialization and interest?	
Give details of your experience in mechanized cement concrete lining and in modern concrete technology for manufacture and quality control.	
Give details of your experience in using heavy earth moving equipment and quality control in compaction of soils.	
Give details of your experience in Underground Drainage work in rocky area.	
Give details of civil work for drainage pumping station	
Give details for construction of sewerage treatment plant	
Give details for pumping machinery in drainage pumping station	

GENERAL CONDITIONS OF CONTRACT

:: **TABLE OF CONTESTS**::

GC-51	Special risks
GC-52	Change in Constitution
GC-53	Sub-contractual relations
GC-54	Patents and Royalties
GC-55	Lien
GC-56	Execution of work
GC-57	Work in monsoon
GC-58	Work on Sundays and Holidays
GC-59	General Conditions for construction work
GC-60	Drawings to be supplied by the Owner
GC-61	Drawings to be supplied by the Contractor
GC-62	Setting outwork
GC-63	Responsibilities of Contractor for correctness of work
GC-64	Materials to be supplied by the Owner
GC-65	Conditions of issue of materials by the Owner
GC-66	Materials procured with assistance of the Owner
GC-67	Materials obtained from dismantling
GC-68	Article of value of treasure found during construction
GC-69	Discrepancies between instructions
GC-70	Alternations in specifications and designs and extra work.
GC-71	Action when no specifications are issued
GC-72	Abnormal rates
GC-73	Assistance to Engineer-In-Charge
GC-74	Tests for quality of work
GC-75	Action and compensation in case of bad workmanship
GC-76	Suspension work
GC-77	Owner may do part of the work
GC-78	Possession prior to completion
GC-79	Completion Certificate
GC-80	Schedule of Rates
GC-81	Procedure for measurement of work in progress
GC-82	Running account payments to be regarded as advances
GC-83	Notice for claim for additional payment
GC-84	Payment of Contractor's Bill
GC-85	Final Bill
GC-86	Receipt for payment
GC-87	Completion Certificate
GC-88	Taxes, Duties, etc.
GC-89	Insurance
GC-90	Damage to Property
GC-91	Contractor to Indemnify Owner
GC-92	Implementation of Apprentice Act 1954
GC-93	Health and Sanitary arrangements for workers
GC-94	Safety Code
GC-95	Accidents

GC-01 **DEFINITIONS AND INTERPRETATIONS:**

1.0 In the contract (as hereinafter defined) the following words and expressions shall, unless repugnant to the subject or context thereof, have the following means assigned to them.

1.1 The "Owner / Corporation" shall mean Rajkot Municipal Corporation and shall include its Municipal Commissioner or other Officers authorized by the Corporation and also include owner's successors and assignees.

1.2 The "Contractor" shall mean the person or the persons, firm or Company whose e-Tender has been accepted by the Owner and includes the Contractors legal representative, his successors and permitted assigned.

1.3 **DELETED**

1.4 The "Engineer-In-Charge" shall mean the person designated as such by the owner from time to time and shall include those who are expressly authorized by the Corporation to act for and on its behalf for all functions pertaining to the operation of this contract.

1.5 Engineer-In-Charge's Representative shall mean any resident Engineer or Assistant to the Engineer-In-Charge appointed from time to time by the owner to perform duties set forth in the E-TENDER Document whose authority shall be notified in writing to the Contractor by the Engineer-In- Charge.

1.6 "E-TENDER" – the offer or proposal of the Bidder submitted in the prescribed form setting for the prices for the work to be performed, and the details thereof.

1.7 "Contract Price" shall mean total money payable to the Contractor under the contract.

1.8 "Addenda" shall mean the written or graphic notices issued prior to submission of e-Tender which modify or interpret the contract documents.

1.9 "Contract Time" – the time specified for the completion of work.

1.10 "Contract" shall mean agreement between the parties for the execution of works including therein all contract documents.

1.11 "Contract Document" shall mean collectively the e-Tender documents, designs, drawings, specifications, agreed variations, if any and such other documents constituting the e-Tender and acceptance thereof.

1.12 "The Sub-Contractor" shall mean any person, firm or company (other than the Contractor) to whom any part of the work has been entrusted by the Contractor with the written consent of the Engineer-In-Charge and the legal representative successors and permitted assignee of such person, firm or company.

1.13 The "Specifications" shall mean all directions, the various Technical Specifications, provisions and requirements attached to the contract which pertains to the method and manner of performing the work, to the quantities and qualities of the work and the materials to be furnished under the contract for the work and any order(s) or instruction(s) there under. It shall also mean the latest Indian Standard Institute Specification relative to the particular work or part thereof, so far as they are not contrary to the E-TENDER specifications and in absence of any other Country applied in Indian as a matter of standard engineering practice and approved in writing by the Engineer-In-Charge with or without modification.

1.14 The "Drawings" shall include maps, plans, tracings, or prints thereof with any modification approved in writing by the Engineer-In-Charge and as such other drawings as may, from time to time, be furnished or approved in writing by the Engineer-In-Charge in connection with the work.

1.15 The "Work" shall mean the works to be executed in accordance with the contract or the part thereof as the case may be and shall include extra, additional, altered or substituted works as required for the purpose of the contract. It shall mean the totality of the work by expression or implication envisaged in the contract and shall include all materials, equipment and labour required for or relative or incidental to or in connection with the commencement, performance and completion of any work and / or incorporation in the work.

1.16 The "Permanent Work" shall mean works which will be incorporated in and form part of the work to be handed over to the owner by the Contractor on completion of the contract.

1.17 The "Temporary Work" shall mean all temporary works of every kind required in or about the execution, completion and maintenance of the work.

1.18 "Site" shall mean the land and other places, on, under, in or through which the permanent works are to be carried out and any other lands or places provided by the Corporation for the purpose of the contract together with any other places designated in the contract as forming part of the site.

1.19 The "Construction Equipment" shall mean all appliances / equipment of whatever nature required in or for execution, completion or maintenance of works or temporary works (as herein before defined) but does not include materials or other things intended to form or forming part of the permanent work.

1.20 **"Notice in writing or written Notice"** shall mean a notice written, typed or in printed form delivered personally **OR** sent by Registered Post to the last known private or business address or Registered Office of the Contractor **OR** through e-mail **OR** mobile message shall be deemed to have been received in the ordinary course of post it would have been delivered.

1.21 The "Alteration / variation order" shall mean an order given in writing by the Engineer-In-Charge to effect additions or deletions from or alterations in the work.

1.22 "Final Test Certificate" shall mean the final test certificate issued by the owner within the provisions of the contract.

1.23 The "Completion Certificate" shall mean the certificate to be issued by the Engineer-In-Charge when the work has been completed and tested to his satisfaction.

1.24 The "Final Certificate" shall mean the final certificate issued by the Engineer-In-Charge after the period of defects liability is over and the work is finally accepted by the owner.

1.25 "Defects Liability Period" shall mean the specified period between the issue of Completion Certificate and the issue of final certificate during which the Contractor is responsible for rectifying all defects that may appear in the works.

1.26 "Approved" shall mean approved in writing including subsequent confirmation in writing of previous verbal approval and "Approval" means approved in writing including as aforesaid.

1.27 "Letter of Acceptance" shall mean an intimation by a letter to Bidder that his e-Tender has been accepted in accordance with the provisions contained therein.

1.28 "Order" and "Instructions" shall respectively mean any written order or instruction given by the Engineer-In-Charge within the scope of his powers in terms of the contract.

1.29 "Running Account Bill" shall mean a bill for the payment of "On Account" money to the Contractor during the progress of work on the basis of work done and the supply of non-perishable materials to be incorporated in the work.

1.30 "Security Deposit" shall mean the deposit to be held by the owner as security for the due performance of the contractual obligations.

1.31 The "Appointing Authority" for the purpose of Arbitration shall be the Municipal Commissioner, Rajkot Municipal Corporation.

1.32. "Retention Money" shall mean the money retained from R.A. Bills for the due completion of the "LET WORS".

1.33 Unless otherwise specifically stated, the masculine gender shall include the feminine and neuter genders and vice-versa and the singular shall include the plural and vice-versa.

GC-02 **LOCATION OF SITE AND ACCESSIBILITY:**

The intending bidders should inspect the site & make thyself familiar with site conditions and available communication facilities.

Non-availability of access roads shall in no case be the cause to condone delay in the execution of the work and no claim or extra compensation will be paid.

GC-03 **SCOPE OF WORK:**

The scope of work is defined broadly in the special conditions of contract and specifications. The Contractor shall provide all necessary materials, equipment and labour etc. for the execution and maintenance of the work. All material that go with the work shall be approved by the Engineer-In- Charge prior to procurement and use.

Power Supply:

The Contractor shall make his own arrangement for power supply during installation.

Land for Contractor's Field Office, Godown Etc.:

Owner will not be in a position to provide land required for Contractor's field office, godown, etc. The Contractor shall have to make his own arrangement for the same.

GC-04 **RULING LANGUAGE:**

The language according to which the contract shall be construed and interpreted shall be English. All entries in the contract document and all correspondence between the contractor and the Corporation or the Engineer-In-Charge shall be in English/Gujarati. All dimensions for the materials shall be given in metric units only.

GC-05 **INTERPRETATION OF CONTRACT DOCUMENT:**

1. The provision of the General Conditions of Contract and Special Conditions of Contract shall prevail over those of any other documents of the contract unless specifically provided otherwise, should have there be any discrepancy, inconsistency, error or omission in the several documents forming the contract, the matter may be referred to the Engineer-In- Charge for his instructions and decision. The Engineer-In-Charge's decision in such case shall be final and binding to the Contractor.

2. Works shown upon the drawings but not described in the specifications or described in the specifications without showing on the drawings shall be taken as described in the specifications and shown on the drawings.

3. The headings and the marginal notes to the clause of these General Conditions of Contract or to the specifications or to any other part of e- Tender documents are solely for the purpose of giving a concise indication and not a summary of contents thereof. They shall never be deemed to be part thereof or be used in the interpretation or construction of the contract.

4. Unless otherwise states specifically, in this contract documents the singular shall include the plural and vice-versa wherever the context so requires. Works imparting persons shall include relevant Corporations / Body of individual / firm of partnership.

5. Notwithstanding the sub-division of the documents into separate section and volumes every part of each shall be supplementary to and complementary of every other part and shall be read with and into the context so far as it may be practicable to do so.

6. Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, then, unless a different intention appears, the provisions of the special conditions of contract shall be deemed to override the provisions of General Conditions of Contract to the extent of each repugnancy of variance.

7. The materials, design, and workmanship shall satisfy the relevant IS, and codes referred to. If additional requirements are shown in the specifications, the same shall be satisfied over and above IS and other codes.

8. If the specifications mention that the Contractor shall perform certain work or provide certain facilities, it shall mean that the Contractor shall do so at his own cost.

9. Contractor to Collect His Own Information -

The details given in the e-Tender are arranged making necessary investigations for framing an estimate. However, when the work is being executed, changes in soil conditions are likely to be met with in view of the formation of soil, strata in Rajkot District. It is, therefore, desirable that the Contractor makes his own investigations or additional investigations as may be required for correctly assessing the cost of different items of work and submit his e-Tender accordingly. Any change in description or quantity of an item shall not vitiate the contract or release the Contractor from executing the work comprised in the contract according to the drawings and specifications at the e-Tendered rates.

He is deemed to have known the scope, nature and magnitude of the work and the requirements of materials and labour involved and as to whatever work he has to complete in accordance with the contract. The Contractor is expected to visit the site and surroundings to satisfy himself as to the nature of all existing structures, if any, and also as to the nature and the conditions of railways, roads, bridges and culverts, means of transport and communications whether by land, air or water and as to possible interruptions thereto and the access and gross from the site, to have examined and satisfied himself as to the sites for obtaining sand, stones, bricks and other materials, the site for disposal of surplus materials, the available accommodation and make such enquiries as may be necessary for executing and completing the work, to have local enquiries as to the sub-soil, subsoil water and variation thereof, storms, prevailing winds, climatic conditions and all other similar matters, effecting work. He is expected to be familiar with his liability for payment of Government taxes, customs and excise duty and other charges etc. in contract with the execution of this contract.

GC-06 **CONTRACTOR TO UNDERSTAND HIMSELF FULLY :**

The Contractor by e-Tendering shall be deemed to have satisfied himself, as to all considerations and circumstances affecting the e-Tender price, as to the possibility of executing the works as shown and described in the contract and to have fixed his prices according to his own view on these matters and to have understood that no additional allowances except as otherwise expressly provided, will afterwards be made beyond the contract price. The Contractor shall be responsible for any misunderstanding or incorrect information, however, obtained.

GC-07 **ERRORS IN SUBMISSIONS :**

The Contractor shall be responsible for any errors or omissions in the particulars supplied by him, whether such particulars have been approved by the Engineer-In-Charge or not.

GC-08 **SUFFICIENCY OF e-TENDER :**

The Contractor shall be deemed to have satisfied himself before e- Tendering as to the correctness of the e-Tender rates which rates shall, except as otherwise provides for, cover all the Contractor's liabilities and obligations set forth or implied in the contract for the proper execution of the work for compliance with requirements of Article GC-19 thereof.

GC-09 **DISCREPANCIES:**

The drawings and specifications are to be considered as mutually explanatory of each other, detailed drawings being followed in preference to small-scale drawings and figured dimensions in preference to scale and special conditions in preference to General Conditions. The special directions or dimensions given in the specifications shall supersede all else. Should any discrepancies however, appear or should any misunderstanding arise as to the meaning and intent of the said specifications or drawings, or as to the dimensions or the quality of the materials or the due and proper execution of the works, or as to the measurement or quality and valuation of the work executed under this contract or as extra there upon, the same shall be explained by the Engineer-In-Charge and his explanation shall be subject to the final decision of the Municipal Corporation in case reference be made to it, be binding upon the Contractor and the Contractor shall execute the work according to such explanation and without addition or to deduction from the contract price and shall also do all such works and things necessary for the proper completion of the works as implied by the drawings and specifications, even though such works and things are not specially shown and described in the said specifications. In cases where no particular specifications are given for any article to be used under the contract, the relevant specifications of the Indian Standard Institution shall apply.

GC-10 **PERFORMANCE GUARANTEE (SECURITY DEPOSIT):**

1. A sum of 5% of the contract price shall be deposited by the Bidder (hereinafter called the contractor when e-Tender is accepted) as security deposit with the owner for the faithful performance, completion and maintenance of the works in accordance with the contract documents and to the satisfaction of the Engineer-In-Charge and assuring the payment of all obligations arising from the execution of the contract. This shall be deposited in one of the forms mentioned below :

   a. By a Demand Draft on the Rajkot Branch of any Scheduled Bank except co-operative bank.

   b. A Fixed Deposit Receipt of a Schedule Bank duly endorsed in favour of the "**RAJKOT MUNICIPAL CORPORATION**", Rajkot.

   c. The Contractor may pay 2.5% of the value of works as initial security deposit and

the balance 2.5% shall be recovered in installments through deductions at the rate of 10 (ten) percent of the value of each Running Account Bill till the total security execution exceeds the accepted value of e-Tender because of allotment of further work, further recoveries towards security deposit shall be effected at 10% of the R A Bills to make up the five percent security deposit of the revised value of contract. Alternatively, the Contractor may at his option deposit the full amount of 5 percent of security deposit within ten days of receipt by him of the notification accepting the e-Tender in the form as aforesaid. **PERFORMANCE GUARANTEE (SECURITY DEPOSIT) WILL BE RELEASED TO THE CONTRACTOR WITHOUT ANY INTEREST AFTER DEFECT LIABILITY PERIOD IS OVER.**

2. If the Contractor, sub-contractor or their employees shall break, deface or destroy any property belonging to the owner or other agency during the execution of the contract, the same shall be made good by the contractor at his own expense and in default thereof, the Engineer-In-Charge may cause the same to be made good by other agencies and recover expense

from the Contractor (for which the certificate of the Engineer-In-Charge shall be final). These expenses can be recovered from the security deposit if recovery from other sources is not possible. The amount as reduced in security deposit will be made good by deduction from the next R A Bill of the Contractor.

GC-11 **INSPECTION OF WORK :**

1. The Engineer-In-Charge shall have full power and authority to inspect the work at any time wherever in progress either on the site or at the Contractor's or any other manufacturer's workshop or factories wherever situated and the Contractor shall afford to Engineer-In-Charge every facility and assistance to carry out such inspection, Contractor or his authorized representative shall, at all time during the usual working hours and all times when so notified, remain present to receive orders and instructions.

Orders given to Contractor's representative shall be considered to have the same force as if they had been given to the Contractor himself. Contractor shall give not less than ten (10) days' notice in writing to the Engineer-In-Charge before covering up or otherwise placing beyond reach of inspection and measurement any work in order that the same may be inspected and measured. In the event of breach of the above, the same shall be uncovered at Contractor's expenses for carrying out such inspection or measurement.

2. The material shall be dispatched from Contractor's store on site of work before obtaining approval in writing of the Engineer-In-Charge. Contractor shall provide at all times during the progress of work and maintenance period of proper means of access with ladders, gangways, etc. and make necessary arrangement as directed for inspection or measurement of work by Engineer-In-Charge.

GC-12 **DEFECT LIABILITY :**

1. **Contractor shall guarantee the work for a period of 36 months.** Any damage or defect that may arise or that may remain undiscovered at the time of issue of Completion Certificate connected in any way with the equipment or materials supplied by him or in the workmanship shall be rectified or replaced by Contractor at his own expense as desired by Engineer-In-Charge or in default Engineer-In-Charge may cause the same to be made good by other agency and deduct expenses of which the certificate of Engineer-In-Charge shall be final from any sums that may then or any time thereafter become due to Contractor or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof.

2. From the commencement to completion of work Contractor shall take full responsibility for the care of the work including all temporary works and in case any damages, occur from any cause whatsoever he shall at his own cost, repair and make good the same so that on completion, work shall be in good order and in conformity, in every respect, with the requirements of contract and as per the

instructions of the Engineer-In-Charge.

3. If at any time before the work is taken over, the Engineer-In-Charge -

a) Decide that any work done or materials used by the Contractor are defective or not in accordance with the contract or that work or any portion thereof is defective or do not fulfill the requirements of contract (all such materials being herein after called defects in this clause) he shall,

as soon as reasonably practicably, give notice to Contractor in writing of the said defect specifying particulars of the same then Contractor shall at his own expense and with all speed make good the defects so specified.

b) In case Contractor fails to do so, owner may take, at the cost of the Contractor, such stops as may in all circumstances be responsible to make good such defects. The expenditure so incurred by owner will be recovered from the amount due to Contractor. The decision of Engineer- In-Charge with regard to the amount to be recovered from Contractor will be final and binding on the Contractor.

GC-13 **POWER OF ENGINEER-IN-CHARGE TO GIVE FURTHER INSTRUCTIONS:**

The Engineer-In-Charge shall have the power and authority from time to time and at all times to give further instructions and directions as may appear to him necessary or proper for the guidance of the Contractor and the works and efficient execution of the works according to the terms of the specifications, and the Contractor shall receive, execute, obey and be bound by the same, according to the true intent and meaning thereof, as fully and effectively as though the same had accompanied or had been mentioned or referred to in the specifications. No work which radically changes the original nature of the contract shall be ordered by the Engineer-In-Charge and in the event of any deviation being ordered, which in the opinion of the Contractor changes the original nature of the contract, he shall nevertheless carry it out and any disagreement as to the nature of the work and the rate to be paid to thereof shall be resolved.

The time of completion of works shall, in the event of any deviations being ordered resulting in additional cost or reduction in cost over the contract sum, be extended or reduced reasonably by the Engineer-In-Charge. The Engineer-In-Charge's decision in the case shall be final and binding.

GC-14 **PROGRAMME :**

The time allowed for execution of works shall be the essence of the contract. The contract period shall commence from the date of notice of intimation to proceed. The Bidder at the time of submitting his e-Tender shall indicate in the construction schedule his programme of execution of work commencement with the total time specified. The Contractor shall provide the Engineer-In-Charge a detailed programme of time schedule for execution of the works in accordance with the specifications and the completion date. The entire programme to be finalized by the Contractor, has to conform to the execution period mentioned along with the Bill of Quantities in the e-Tender documents. The Engineer-In-Charge upon scrutiny of such submitted programme by Contractor, shall examine suitability of it to the requirement of contract and suggest modifications, if found necessary.

GC-15 **SUB-LETTING OF WORK :**

No part of the contract nor any share of interest thereon shall in any manner or degree be transferred, assigned or sublet by the Contractor directly or indirectly to any person, firm or Corporation whosoever except as provided for in the succeeding sub-clause, without the consent in writing of the owner.

GC-16 **SUB-CONTRACTS FOR TEMPORARY WORKS ETC. :**

The owner may give written consent to sub-contractors for execution of any part of the works at the site, being entered upon the contractor provided each

individual contract is submitted to the Engineer-In-Charge before being entered into and is approved by him. List of sub-contractors to be supplied.

Not-withstanding any subletting with such approval as aforesaid and notwithstanding the Engineer-In-Charge shall have received of any sub-contractors, the Contractor shall be and shall remain solely responsible for the quality and proper and expeditious execution of the works and the performance of all the conditions of contract in all respects as if such subletting or subcontracting had not taken place and as if such works had been done directly by the Contractor.

GC-17 **TIME FOR COMPLETION :**

1. The work covered under this contract shall be commenced from the date the Contractor is served with a notice to proceed with the work and shall be completed before the date as mentioned in the time schedule of work. The time is the essence of the contract and unless the same is extended as mentioned in Clause GC-18 "Extension of Time", the Contractor shall pay liquidated damages for the delay.
2. The general time schedule for construction is given in the e-Tender document. Contractor shall prepare a detailed weekly or monthly construction programme in consultation with the Engineer-In-Charge soon after the agreement and the work shall be strictly executed accordingly. The time for construction includes, the time required for testing, rectifications, if any, retesting and completion of the work in all respects to the entire satisfaction of the Engineer-In-Charge except the items which are not coming in the way to commission the project.
3. ~~Monsoon period from 1st July to 30th September shall be considered as non-working period hence excluded in time limit~~.

GC-18 **EXTENSION OF TIME :**

Time shall be considered as the essence of the contract. If, however, the failure of the Contractor to complete the work as per the stipulated dates referred to above arises from delays on the part of Corporation in supplying the materials or equipment, it has undertaken to supply under the contract or from delays on the quantity of work to be done under the contract, or force majeure an appropriate extension of time will be given by the Corporation. The Contractor shall request for such extension within one month of the cause of such delay and in any case before expiry of the contract period.

GC-19 **CONTRACT AGREEMENT :**

The successful Bidder shall enter into and execute the contract agreement within 10 (ten) days of the notice of award, in the form shown in e-Tender documents with such modifications as may be necessary in the opinion of the Corporation. It shall be incumbent on the Contractor to pay the stamp duty and the legal charges for the preparation of the contract agreement.

GC-20 **LIQUIDATED DAMAGES :**

If the Contractor fails to complete the work or designated part thereof within the stipulated completion date for the work or for the part, he shall pay liquidated damages at 0.1 (zero point one) percent of contract value for per day of delay subject to maximum of 10% of the contract value or as decided by Municipal Commissioner.

The Contractor shall complete one-sixth quantum of work within one fourth period, four-tenth quantum of work within one-half period and eight-tenth quantum of work within three-fourth period, failing which, the Contractor shall be liable to pay liquidated damages an amount as specified above, or as decided by Municipal Commissioner.

The amount of liquidated damages shall, however, be subjected to a maximum

of 10 percent of the contract value.

GC-21 **FORFEITURE OF SECUEITY DEPOSIT :**

Whenever any claim against the Contractor for the payment of a sum of money out of or under the contract arises, the Corporation shall be entitled to recover such sum by appropriating in part or whole, the security deposit of the Contractor. In case the security deposit is insufficient, the balance recoverable shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor. The Contractor shall pay to the owner on demand any balance remaining due.

GC-22 **ACTION OF FORFEITURE OF SECURITY DEPOSIT :**

In any case in which under any Clause or Clauses of the contract, the Contractor shall committed a breach of any of the terms contained in this contract, the owner shall have power to adopt any of the following courses as he may deem best suited to his interest.

a) To rescind the contract (of which recession notice in writing to the contractor under the hand of the owner shall be conclusive evidence) in which case the security deposit of the Contractor shall stand forfeited and be absolutely at the disposal of the owner.

b) To employ labour and to supply materials to carry out the balance work debiting Contractor with the cost of labour employed and the cost of materials supplied for which a certificate of the Engineer-In-Charge shall be final and conclusive against the Contractor and 10% of costs on above to cover all departmental charges and crediting him with the value of work done at the same rates as if it has been carried out by the Contractor under the terms of his contract. The certificate of Engineer-In-Charge as to the value of the work done shall be final and conclusive against the Contractor.

c) To measure up the work of the contractor and to take such part thereof as shall be unexecuted out of his hand and give it to another Contractor to complete, the same. in this case the excess expenditure incurred than what would have been paid to the original Contractor, if the whole work had been executed by him, shall be borne and paid by the original Contractor and shall be deducted from any money due to him by the owner under the contract or otherwise and for the excess expenditure, the certificate of the Engineer-In-Charge shall be final and conclusive.

In the event any of the above courses being adopted by the owner, the Contractor shall have no claims for compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any agreements or made any advance on account of or with a view to the execution of the work or the performance of the contract.

In purchase the Contractor shall not be entitled to recover or be paid any sum for any work actually performed under this contract unless the Engineer-In-Charge will certify in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

In the event of the owner putting in force the powers as stated in a, b, c, above vested in him under the proceeding clause, he may, if he so desires, take possession of all or any tools and plant, materials and stores in or upon the works or the site thereof belonging to the Contractor, or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in account at the contract rates to be certified by the Engineer-In-Charge. The Engineer-In-Charge

may give notice in writing to the Contractor or his representative requiring him to remove such tools, plant, materials or stores from the premises within the time

specified in the notice and in the event of the Contractor failing to comply with any such notice, the Engineer-In-Charge may remove them at the Contractor's expenses or sell them by auction or private sale on account of the Contractor and his risks in all respects without any further notice as to the date, time or place of the sale and the certificate of Engineer-In-Charge as to the expense of any such removal and the amount of the proceeds and the expenses of any such sale shall be final and conclusive against the Contractor.

GC-23 **COMPENSATION FOR ALTERATION IN OR RESTRICTION IN WORK :**

If at any time from the commencement of the work, the owner shall for any reasons whatsoever not require the whole work or part thereof as specified in the e-Tender to be carried out, the Engineer-In-Charge shall give notice in writing of the fact to the Contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of full amount of the work not having been carried out. He also shall not have any claim for compensation by reasons of any alterations having been made in original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

When the Contractor is a partnership firm, the prior approval in writing of the owner shall be obtained before any change is made in the Constitution of the firm. Where the Contractor is an individual or a Hindu Undivided Family or business concern, such approval as aforesaid shall, likewise be obtained before Contractor enters into an agreement with other parties where under, the reconstituted firm would have the right to carry out the work hereby undertaken by the Contractor. In either case, if prior approval as aforesaid is not obtained, the contract shall be deemed to have been allotted contravention of subletting clause hereof and the same action may be taken and the same consequence shall ensure as provided in the subletting clause.

GC-24 **IN THE EVENT OF DEATH OF THE CONTRACTOR :**

Without prejudice to any of the rights or remedies under the contract, if the Contractor dies, the owner shall have the option of terminating the contract without compensation to the Contractor.

GC-25 **MEMBERS OF THE OWNER NOT INDIVIDUALLY LIABLE :**

No official or employee of the owner shall in any way be personally bound or liable for the acts or obligation of the owner under the contract, or answerable for any default or omission in the observance or performance of any acts, matters or things, which are herein, contained.

GC-26 **OWNER NOT BOUND BY PERSONAL REPRESENTATIONS :**

The Contractor shall not be entitled to any increase on the schedule of rates or any other rights or claims whatsoever by reason of representation, promise or guarantees given or alleged to have been given to him by any person.

GC-27 **CONTRACTOR'S OFFICE AT SITE :**

The Contractor shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall remain open at all reasonable hours to receive information, notices or other communications.

GC-28 **CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT :**

1. The Contractor on award of the work shall name and depute a qualified Engineer having experience of carrying out work of similar nature, whom equipment, materials, if any, shall be issued and instructions for work given the Contractor shall also provide to the satisfaction of Engineer-In- Charge sufficient and qualified staff, competent sub-agents, foreman and loading hands including those specially qualified by previous experience to supervise the type of works comprised in the

contract in such manner as will ensure work of the best quality and expeditious working. If, in the opinion of the Engineer-In-Charge additional properly qualified supervision staff is considered necessary, it shall be employed by the Contractor, without additional charge on account thereof. The Contractor shall ensure to the satisfaction of the Engineer-In-Charge that sub-contractors, if any, shall provide competent and efficient supervision over the work entrusted to them.

2. If and whenever any of the Contractor's or sub-contractor's agents, sub- agents, assistants, foreman or other employees shall, in the opinion of the Engineer-In-Charge, be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties or that in the opinion of the owner or Engineer-In-Charge, it is undesirable for administrative or any other reason for person or persons to be employed in the works, the Contractor if so directed by the Engineer-In- Charge, shall at once remove such person or persons from employment thereon. Any person or persons so removed shall not again be re-employed in connection with the works without the written permission of the Engineer-In-Charge. Any person, so removed from the works shall be immediately replaced at the expense of the Contractor by a qualified and competent substitute. Should the Contractor be required to repatriate any person removed from the works he shall do so after approval of Engineer- In-Charge and shall bear all costs in connection there with.

3. The Contractor shall be responsible for the proper behavior of all the staff, foreman, workmen and others and shall exercise proper control over them and in particular and without prejudice to the said generality, the Contractor shall be bound to prohibit and prevent any employee from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighborhood and in the event of such employees so trespassing, the Contractor shall be responsible therefore and relieve the owner of all consequent claims, actions for damages or injury or any other ground whatsoever. The decision of the Engineer-In-Charge upon any matter arising under this claim shall be final.

4. If and when required by the owner, the Contractor's personnel entering upon the owner's premises shall be properly identified by badges of a type acceptable to the owner which must be worn at all times on owner's premises.

GC-29 **TERMINATION OF SUB-CONTRACT BY OWNER :**

If any sub-contractor engaged upon the works at the site execute any work which in the opinion of Engineer-In-Charge is not accordance with the contract documents, the owner may by written notice to the Contractor request him to terminate such sub-contract and the Contractor upon the receipt of such notice shall terminate such sub-contracts and the latter shall forthwith leave the works, failing which, the owner shall have the right to remove such sub-contractors from the site.

No action taken by the owner under the above clause shall relieve the Contractor of his liabilities under the contract or give rise to any right to compensation, extension of time or otherwise.

GC-30 **POWER OF ENTRY :**

If the Contractor shall not commence the work in the manner previously described in the contract documents or if he shall at any time, in the opinion of Engineer-In-Charge –

i) Fail to carry out works in conformity with the contract documents, or
ii) Fail to carry out the works in accordance with the time schedule, or
iii) Substantially suspend work or the works for a period of seven days without authority from Engineer-In-Charge, or
iv) Fail to carry out and execute the work to the satisfaction of the Engineer-

In-Charge, or

v) Fail to supply sufficient or suitable construction plant, temporary works, labour, materials or things, or

vi) Commit breach of any other provisions of the contract on his part to be performed or observed or persists in any of the above mentioned breaches of the contract for seven days after notice in writing shall have been given to the Contractor by the Engineer-In-Charge requiring such breach to be remedied, or

vii) Abandon the work, or

viii) During the continuance of the contract becomes bankrupt, make any arrangement or compromise with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case.

The owner shall have the power to enter upon the works and take possession thereof and of the materials, temporary works, constructional plant and stores therein and to revoke the Contractor's license to use the same and to complete the works by his agents, other Contractor or workmen, to relate the same upon any terms to such other person firm or Corporation as the owner in his absolute discretion may think proper to employ, and for the purpose aforesaid to use or authorize the use of any materials, temporary works, constructional plant, and stores as aforesaid with making payments or allowance to the Contractor for the said materials other than such as may be certified in writing by the Engineer- In-Charge to be reasonable and without making any payment or allowance to the Contractor for the use of said temporary works, constructional plant and stock or being liable for loss or damage thereto. If the owner shall be reason of his taking possession of the works or of the work being got completed by other Contractor incurred excess expenditure be deducted from any money which may be due for the work done by the Contractor under the contract and not paid for. Any deficiency shall forthwith be made good and paid to the owner by the Contractor and the owner shall have power to sell in such manner and for such price as he may think fit all or any of the constructional plant, materials etc., consist constructed by or belonging to and to recoup and retain the said deficiency or any part thereof out of the proceeds of the sale.

GC-31 **CONTRACTOR'S RESPONSIBILITY WITH THE OTHER CONTRACTOR AND AGENCIES :**

Without repugnance to any other conditions, it shall be the responsibility of the Contractor executing the work, to work in close co-operation and co-ordination with other Contractors or their authorized representatives and the Contractor will put a joint scheme with the concurrence of other contractors or their authorized representatives showing the arrangements for carrying his portion of the work to the Engineer-In-Charge and get the approval. The Engineer-In-Charge before approving the joint scheme will call the parties concerned and modify the scheme if required. No claim will be entertained on account of the above. The Contractor shall conform in all respects with the provisions of any statutory regulations, ordinances or bylaws of any local or duly constituted authorities or public bodies which may be applicable from time to time to works or any temporary works. The Contractor s shall keep the owner indemnified against all penalties and liabilities of every kind arising out of non-adherence to such statutes, ordinance, laws, rules, regulations etc.

GC-32 **OTHER AGENCIES AT SITE :**

The Contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works, such as site grading, filling and leveling, electrical and mechanical engineering works etc. No claim shall be entertained for works being executed in the above circumstances.

GC-33 **NOTICES :**

Any notice under this contract may be served on the Contractor or his duly authorized representative at the job site or may be served by Registered Post

direct to the official address of the Contractor. Proof of issue of any such notice could be conclusive of the Contractor having been duly informed of all contents therein.

GC-34 **RIGHTS OF VARIOUS INTERESTS :**

The owner reserves the right to distribute the work between more than one Contractor. Contractor shall co-operate and afford reasonable opportunity to other Contractor s for access to the works, for the carriage and storage of materials and execution of their works. Whenever the work being done by department of the owner or by other Contractor employed by the owner is contingent upon work covered by this contract, the respective rights of the various interests shall be determined by the Engineer-In-Charge to secure the completion of various portions of the work in general harmony.

GC-35 **PRICE ADJUSTMENTS :**

No adjustment in price shall be allowed and no price escalation will be allowed.

GC-36 **TERMS OF PAYMENT :**

The payment of bills shall be made progressively according to the rules and practices followed by the Corporation. The progressive payment unless otherwise provided in the contract agreement or subsequently agreed to by the parties shall be made generally monthly on submission of a bill by the Contractor in prescribed form of an amount according to the value of the work performed less the price of materials supplied by owner aggregate of previous progressive payments and as required by Clause GC-37 (Retention of Money) herein. All such progressive payments shall be regarded as payments by way of advance against final payment. Payment for the work done by the Contractor will be based on the measurement at various stages of the work, in accordance with the condition at clause GC-81 (measurement of work in progress).

GC-37 **RETENTION MONEY :**

Pursuance to clause GC-36 (Terms of Payment) any on at money due to the Contractor for work done, Corporation will hold as Retention money five (5) percent of the value of work. The retention money will not normally be due for payment until the completion of the entire work and till such period the work has been finally accepted by the Corporation and a completion certificate issued by the Corporation in pursuant to Clause- GC 79 (Completion Certificate).

GC-38 **PAYMENTS DUE FROM THE CONTRACTOR :**

All costs, damages or expenses, for which under the contract, Contractor is liable to the Corporation, may be deducted by the Corporation from any money due or becoming due to the Contractor under the contract or from any other contract with the Corporation or may be recovered by action at law or otherwise from the Contractor.

GC-39 **CONTINGENT FEE :**

i) The Contractor warrants that he has not employed a person to solicit or secure the contract upon any agreement for a commission, percentage, and brokerage contingent fee. Breach of this warranty shall give the Corporation the right to cancel the contract or to take any drastic measure as the Corporation may deem fit. The warranty does not apply to commissions payable by the Contractor to establish commercial or selling agent for the purpose of securing business.

ii) No officer, employer or agent of the Corporation shall be admitted to any share or part of this contract or to any benefit that may rise there from.

GC-40 **BREACH OF CONTRACT BY CONTRACTOR :**

If the Contractor fails to perform the work under the contract with due diligence or shall refuse or neglect to comply with instructions given to him in writing by the Engineer-In-Charge in accordance with the contract, or shall contravene the provisions of the contract, the Corporation may give notice in writing to the

Contractor to make good such failure, neglect, or contravention. Should the Contractor fail to comply with such written notice within 10 (Ten) days of receipt, it shall be lawful for the Corporation, without prejudice to any other rights the Corporation may have under the contract, to terminate the contract for all or part of the works, and make any other arrangements it shall deem necessary to complete the work outstanding under the contract at the time of termination. In this event, the performance Bond shall immediately become due and payable to the Corporation. The value of the work done on the date of termination and not paid for shall be kept as deposit for adjustment of excess expenditure incurred in getting the remaining work completed and the Corporation shall have free use of any works which the Contractor may have at the site at the time of termination of the contract.

If Contractor fails to carry out the work in timely manner as mentioned in clause 20 (Liquidated damages), Rajkot Municipal Corporation may give notice in writing to the Contractor to expedite the work, so that the work can be completed as per time schedule. If Contractor fails to expedite the work within 10 days of receipt of notice, Rajkot Municipal Corporation may terminate the contract and debar the Contractor for three years and the remaining work will be executed through other agency at the risk and cost of the Contractor.

GC-41 **DEFAULT OF CONTRACTOR :**

i) The Corporation may upon written notice of default to the Contractor terminate the contract circumstances detailed as under:

a) If in the opinion of the Corporation, the Contractor fails to make completion of works within the time specified in the completion schedule or within the period for which extension has been granted by the Corporation to the Contractor.

b) If in the opinion of the Corporation, the Contractor fails to comply with any of the other provisions of this contract.

ii) In the event, the Corporation terminates the contract in whole or in part as provided in Article GC-50 (Termination of the Contract) the Corporation reserves the right to purchase upon such terms and in such manner as it may be deem appropriate, plant similar to one which is not supplied by the Contractor and the Contractor will be liable to the Corporation for any additional costs for such similar plant and / or for liquidated damages for delay until such time as may be required for the final completion of works.

iii) If this contract is terminated as provided in this paragraph GC-40 AND/OR GC-30 (Power of Entry) (1) the Corporation in addition to any other rights provided in this clause, may require the Contractor to transfer title and deliver to the Corporation.

a) Any completed works
b) Such partially completed information and contract rights as the Contractor has specifically produced or acquired for the performance of the contract so terminated.

iv) In the event, the Corporation does not terminate the contract as provided in the paragraph GC-50 (Termination of Contract) the Contractor shall continue performance of the contract, in which case, he shall be liable to the Corporation for liquidated damages for delay until the works are completed and accepted.

GC-42 **BANKRUPTCY :**

If the Contractor shall become bankrupt or insolvent or has a receiving order made against him, or compound with his creditors, or being the Corporation commence to be wound up not being a member voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of his creditors or any of them, the Corporation shall be at

liberty to either (a) terminate the contract forthwith by giving notice in writing to the Contractor or to the receiver or liquidator or to any person or Organization in whom the contract may become vested and to act in the manner provided in Article GC-41 (Default of Contractor) as thought the last mentioned notice had been the notice referred to in such article or (b) to give such receiver, liquidator or other persons in whom the contract may become vested the option of carrying out the contract subject to his providing a satisfactory guarantee for the due and faithful, performance of the contract up to an amount to be agreed. In the event that the Corporation terminates the contract in accordance with this article, the performance bond shall immediately become due and payable on demand to Corporation.

GC-43 **OWNERSHIP :**

Works hand over pursuant to the contract shall become the property of the Corporation from whichever is the earlier of the following times, namely;

a) When the works are completed pursuant to the contract.
b) When the contractor has been paid any sum to which he may become entitled in respect thereof pursuant to Clause GC-36 (Terms of Payment).

GC-44 **DECLARATION AGAINST WAIVER :**

The condemnation by the Corporation of any breach or breaches by the Contractor or an authorized sub-contractor of any of the stipulations and conditions contained in the contract, shall in no way prejudice or affect or be construed as a waiver of the Corporation's rights, powers and remedies under the contract in respect of any breach or breaches.

GC-45 **LAWS GOVERNING THE CONTRACT :**

This contract shall be construed according to and subject to the laws of India and the State of Gujarat and under the jurisdiction of the Courts of Gujarat at Rajkot.

GC-46 **OVER PAYMENT AND UNDER PAYMENT :**

Whenever any claim for the payment of a sum to the Corporation arises out of or under this contract against the Contractor, the same may be deducted by the Corporation from any sum then due or which at any time thereafter may become due to the Contractor under this contract and failing that under any other contract with the Corporation (which may be available with the Corporation), or from his retention money or he shall pay the claim on demand. The Corporation reserves the right to carry out post payment audit and technical examinations of the final bill including all supporting vouchers, abstracts etc. The Corporation further reserves the right to enforce recovery of any payment when detected, not withstanding the fact that the amount of the final bill may be included by one of the parties as an item of dispute before an Arbitrator, appointed under Article GC-49 (Arbitration) of this contract and notwithstanding the fact that the amount of the final bill figures in the arbitration award. If as a result of such audit and technical examinations any over payment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the contract, it shall be recovered by the Corporation from the Contractor as prescribed above. If any under payment is discovered by the Corporation, the amount due to the Contractor under this contract, may be adjusted against any amount then due or which may at any time thereafter become due before payment is made to the Contractor.

GC-47 **SETTLEMENT OF DISPUTES :**

Except as otherwise specifically provided in the contract, all disputes concerning questions of fact arising under the contract shall be decided by the Engineer-In-Charge subject to a written appeal by the Contractor to the Engineer-In-Charge and those decisions shall be final and binding on the parties hereto. Any disputes or differences including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible settled

amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled as provided in Article GC-48 (Disputes or differences to be referred to) and Article No.GC-49 (Arbitration).

GC-48 **DISPUTES OF DIFFERENCES TO BE REFERRED TO :**

If at any time, any question, disputes or differences of any kind whatsoever shall arise between the Engineer-In-Charge and the contractor upon or in relation to or in connection with this contract either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference as to any decision, opinion, instruction, direction, certificate or evaluation of the Engineer-In-Charge. The question, dispute or differences shall be settled by the Municipal Commissioner, Rajkot Municipal Corporation, who shall state his decision in writing and give notice of same to the Engineer-In-Charge and to the Contractor. Such decision shall be final and binding upon both parties. The contract and work on contract if not already breached or abandoned shall proceed normally unless and until the same shall be revised (or uphold) by any arbitration proceedings as hereinafter provided. Such decisions shall be final and binding on the Engineer-In-Charge and the Contractor unless the Contractor shall require the matter to be referred to an Arbitration panel as hereinafter provided.

GC-49 **ARBITRATION :**

In case of any dispute arising during the course of execution, the matter should be referred to Municipal Commissioner who will be sole Arbitrator whose decisions will be final and binding to the Contractor.

The word "Arbitration" or "Arbitration Clause" wherever mentioned in this tender document, is to be treated to be referred to GC-49. In this context, an Order bearing No. RMC/Legal/1858 dated 18-02-2017 of Legal Department of Rajkot Municipal Corporation is uploaded separately along with this tender, which Order, will hereafter referred and taken into consideration for Arbitration related purpose.

GC-50 **TERMINATION OF THE CONTRACT :**

i) If the Contractor finds it impracticable to continue operation owing to force majeure reasons or for any reasons beyond his control and/or the Corporation find it impossible to continue operation, then prompt notification in writing shall be given by the party affected to the other.

ii) If the delay or difficulties so caused cannot be expected to cease or become unavoidable or if operations cannot be resumed within two (2) months then either party shall have the right to terminate the contract upon ten (10) days written notice to the other. In the event of such termination of the contract, payment to the Contractor will be made as follows :

a) The Contractor shall be paid for all works approved by the Engineer-In- Charge and for any other legitimate expenses due to him.

b) If the Corporation terminates the contract owing to Force Majeure or due to any cause beyond its control, the Contractor shall additionally be paid for any work done during the said two (2) months period including any financial commitment made for the proper performance of the contract and which are not reasonably defrayed by payments under (a) above.

c) The Corporation shall also release all bonds and guarantees at its disposal except in cases where the total amount of payment made to the Contractor exceeds the final amount due to him in which case the Contractor shall refund the excess amount within thirty (30) days after the termination and the Corporation thereafter shall release all bonds and guarantees. Should the Contractor fail to refund the amounts received in excess within the said period such amounts shall be deducted from the bonds or guarantees provided.

iii) On termination of the contract for any cause the Contractor shall see the orderly

suspension and termination of operations, with due consideration to the interests of the Corporation with respect to completion safeguarding of storing materials procured for the performance of the contract and the salvage and resale thereof.

GC-51 **SPECIAL RISKS :**

If during the contract, there shall be an outbreak of war (whether war is declared or not), major epidemic, earthquake or similar occurrence in any part of the world beyond the control of either party to the contract which financially or otherwise materially affects the execution of the contract, the Contractor shall unless and until, the contract is terminated under the provisions of this article use his best endeavors to complete the execution of the contract, provided always that the Corporation shall be entitled at any item after the onset of such special risks, to terminate the contract by giving written notice to the contractor and upon such notice being given this contract shall terminate but without prejudice to the rights of either party in respect of any antecedent breach thereof.

The Contractor shall not be liable for payment of compensation for delay or for failure to perform the contract for reasons of Force Majeure such as acts of public enemy, acts of Government, fires, floods, cyclones, epidemics, quarantine restrictions, lockouts, strikes, freight embargoes and provided that the Contractor shall within 10 (ten) days from the beginning of such delay notify the Engineer-In-Charge in writing, of the cause of delay, the Corporation shall verify the facts and grant such extension as the facts justify.

GC-52 **CHANGE IN CONSTITUTION :**

Where the Contractor is a partnership firm, the prior approval in writing of the owner shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or undivided family business concern such approval as aforesaid shall likewise be obtained before the Contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the Contractor. If prior approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of contract.

GC-53 **SUB-CONTRACTUAL RELATIONS :**

All works performed for the contract by a sub-contractor shall be pursuant to an appropriate agreement between the Contractor and the sub- contractor, which shall contain provision to –

a) Protect and preserve the rights of the Corporation and the Engineer-In- Charge with respect to the works to be performed under the sub- contracting party will not prejudice such rights.

b) Require that such work be performed in accordance with the requirements of contract documents.

c) Require under such contract to which the contractor is a party, the submission to the Contractor of application for payment and claims for additional costs, extension of time, damages for delay or otherwise with respect to the sub-contracted portions of the work in sufficient time, that the Contractor may apply for payment comply in accordance with the contract documents for like claims by the Contractor upon the Corporation.

d) Waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance except such rights as they may have to the proceeds of such insurance held by the Corporation as trustee and,

e) Obligate each sub-contractor specifically to consent to the provisions of this Article.

GC-54 **PATENTS AND ROYALTIES:**

1. Contractor, if licensed under any patent covering equipment, machinery, materials or composition of matter to be used or supplied or methods and process

to be practiced or employed in the performance of this contract agrees to pay all royalties and license fees, which may be due with respect thereto. If any equipment, machinery, materials, composition matters, to be used or supplied or methods practiced or employed in the performance of this contract, is covered by a patent under which Contractor is not licensed, then the Contractor before supplying / using the equipment, machinery, materials, compositions, methods of process shall obtain such license and pay such royalties and license fees as may be necessary for performance of this contract. In the event Contractor fails to pay such royalty or to obtain any such license, any suit for infringement of such patents which is brought against the Contractor or the owner as a result of such failure will be defended by the Contractor at his own expenses and the Contractor will pay any damages and costs awarded in such suit. The Contractor shall promptly notify the owner if the Contractor has acquired knowledge of any plant under which a suit for infringement could be reasonably brought because of the use by the owner of any equipment machinery, materials, process methods to be supplied in hereunder. Contractor agrees to and does hereby grant to owner together with the right to extend the same to any of the subsidiaries of the owner an irrevocable royalty fee license to use in any Country, any invention made by the Contractor or his employees in or as a result of the performance of work under contract.

2. With respect to any sub-contract entered into by Contractor pursuant to the provisions of the relevant clause hereof, the Contractor shall obtain from the sub-contractor an understanding to provide the owner with the same patent protection that contracts is required to provide under the provisions of the clause.

3. The Contractor shall indemnify and save harmless the owner from any loss on account of claims against owner for the contributory infringement of patent rights arising out of and based upon the claim that the use by the Corporation of the process included in the design prepared by the Contractor and used in the operation of the plant infringes on any patent rights.

GC-55 **LIEN :**

If, at any time, there should be evidence of any lien or claim for which owner might have become liable and which is chargeable to the Contractor, the owner shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the owner against such lien or claim or if such lien or claim be valid the owner may pay and discharge the same and deduct the amount as paid from any money which may be due or become due and payable to the Contractor. If any lien or claims remaining unsettled after all payments are made, the Contractor shall refund or pay to the owner all money that the latter may be compelled to pay in discharging such lien or claim including all costs and reasonable expenses.

GC-56 **EXECUTION OF WORK :**

The whole work shall be carried out in strict conformity with the provisions of the contract document, detailed drawings, specifications and the instructions of the Engineer-In-Charge from time to time. The Contractor shall ensure that the whole work is executed in the most substantial, and proper manner with best workmanship using materials of best quality in strict accordance with the specifications to the entire satisfaction of the Engineer-In-Charge.

GC-57 **WORK IN MONSOON :**

When the work continues in monsoon if required, the Contractor shall maintain minimum labour force required for the work and plan and execute the construction and erection work according to the prescribed schedule. No extra rate will be considered for such work in monsoon. During monsoon and entire construction period, the Contractor shall keep the site free from water at his own cost. ~~However, monsoon period from 1st July to 30th September will be excluded in time limit~~.

GC-58 **WORK ON SUNDAYS AND HOLIDAYS :**

No work except curing shall be carried out on Sunday and holidays. However, if the exigencies of the work need continuation of work on Sundays and Holidays, written permission of the Engineer-In-Charge shall be obtained in advance.

GC-59 **GENERAL CONDITIONS FOR CONSTRUCTION WORK :**

Working hours shall be eight every day. The overtime work in two shifts could be carried out with the written permission of the Engineer-In-Charge but no compensation shall be paid for the same. The rate quoted shall include this. The Contractor shall plan his work in such a way that his labourers do not remain idle. The owner will not be responsible for idle labour of the Contractor. The Contractor shall submit to the owner progress report every week. The details and proforma of the report will be as per mutual agreement.

GC-60 **DRAWINGS TO BE SUPPLIED BY THE OWNER : (N.A.)**

The drawings attached with the e-Tender documents shall be for general guidance of the Contractor to enable him to visualize the type of work contemplated and scope of work involved. Detail working drawings according to which the work is to be done shall be prepared by the Contractor for executing the work.

GC-61 **DRAWINGS TO BE SUPPLIED BY THE CONTRACTOR:**

Where drawings, data are to be furnished by the Contractor they shall be as enumerated in special conditions of contract and shall be furnished within the specified time. Where approval of drawings has been specified it shall be Contractor's responsibility to have these drawings got approved before any work is taken up with regard to the same. Any changes becoming necessary in those drawings during the execution of the work shall have to be carried out by the Contractor at no extra cost. All final drawings shall bear the certification stamp as indicated below duly signed by both the Contractor and Engineer-In-Charge.

Certified true for _____ Project
Agreement No……..
Signed ……

Contractor **Engineer-In-Charge**

Drawings will be approved within three (3 weeks of the receipt of the same by the Engineer-In-Charge.

GC-62 **SETTING OUT WORK :**

The Contractor shall set out the work on the site handed over by the Engineer-In-Charge and shall be responsible for the correctness of the same. The work shall be carried out to the entire satisfaction of Engineer- In-Charge. The approval thereof or partaking by Engineer-In-Charge or setting out work shall not relieve Contractor of any of his responsibilities. The Contractor shall provide at his own cost all necessary level posts, pegs, bamboos, flags, ranging rods, strings and other materials and labourers required for proper setting out of the work. The Contractor shall provide fix and be responsible for the maintenance of all stakes, templates, level markets, profiles and similar other things and shall take all necessary precautions to prevent their removal or disturbance and shall be responsible for the consequences for such removal or disturbance. The Contractor shall also be responsible for the maintenance of all existing survey marks, boundary marks, and distance marks and centerline marks both existing or face lines and cross lines shall be marked by small masonry pillars. Each pillar shall have distance mark at the center for setting up the theodolite. The work shall not be started unless the setting out is choked and approved by Engineer-In-Charge in writing but such approval shall not relieve the Contractor of his responsibilities about the correctness of setting out. The Contractor shall provide all materials, labour and other facilities necessary for checking at his own cost. Pillars bearing geodetic marks on site shall

be protected by the Contractor. On completion of the work, the Contractor shall submit the geodetic documents according to which the work has been carried out.

GC-63 **RESPONSIBILITIES OF CONTRACTOR FOR CORRECTNESS OF THE WORK :**

The Contractor shall be entirely and exclusively responsible for the correctness of every part of the work and shall rectify completely any errors therein at his own cost when so instructed by Engineer-In-Charge. If any error has crept in the work due to non-observance of this clause, the Contractor will be responsible for the error and bear the cost of corrective work.

1. **Materials to be supplied by the Contractor:**

Contractor shall procure and provide all the material required for the execution and maintenance of work including M S rods; all tools, tackles, construction plant and equipment except, the materials to be supplied by the owner detailed in the contract documents. Owner, shall make recommendations for procurement of materials to the respective authorities if desired by the Contractor but assumes no responsibility of any nature. Owner shall insist for procurement of materials with ISI marks supplied by reputed firms of the DGS & D list.

2. If however, the Engineer-In-Charge feels that the work is likely to be delayed due to Contractor's inability to procure materials, the Engineer-In- Charge shall have the right to procure materials, from the market and the Contractor will accept these materials at the rates decided by Engineer-In- Charge.

GC-64 **MATERIALS TO BE SUPPLIED BY THE OWNER :**

1. If the contract provided certain materials or stores to be supplied by the owner, such materials and stores transported by the Contractor at his cost from owner's stores or Railway Station. The cost from Contractor for the value of materials supplied by the owner will be recovered from the R.A. Bill on the basis of actual consumption of materials in the work covered and for which R A Bill has been prepared. After completion of the work, the Contractor has to account for the full quantity of materials supplied to him.

2. The value of store materials supplied by owner to the Contractor shall be charged at rates shown in the contract document and in case any other material not listed in the schedule of materials is supplied by the owner, the same shall be charged at cost price including carting and other expenses incurred in procuring the same. All materials so supplied shall remain the property of the owner and shall not be removed from the site on any account. Any material remaining unused at the time of completion of work or termination of contracts shall be returned to owner's store or any other place as directed by the Engineer-In-Charge in perfectly good condition at Contractor's cost. When materials are supplied free of cost for use in work and surplus and unaccounted balance thereof are not returned to the owner, recovery in respect of such balance will be effected at double the applicable issue rate of the material or the market rates whichever is higher.

GC-65 **CONDITIONS OF ISSUE OF MATERIALS BY THE OWNER: (N.A.)**

The materials specified to be issued by the owner to the Contractor shall be issued by the owner at his store and all expenses for it carting site shall be borne by the Contractor will be issued during working hours and as per rules of owner from time to time.

Contractor shall bear all expenses for storage and safe custody at site of materials issued to him before use in work.

Material shall be issued by the owner in standard / non-standard sizes as obtained from manufacturer.

Contractor shall construct suitable godowns at site for storing the materials to

protect the same from damage due to rain, dampness, fire, theft etc.

The Contractor should take the delivery of the materials issued by the owner after satisfying himself that they are in good condition. Once the materials are issued, it will be the responsibility of the Contractor to keep them in good condition and in safe custody. If the materials get damaged or if they are stolen, it shall be the responsibility of the Contractor to replace them at his cost according to the instructions of the Engineer-In- Charge.

For delay in supply or for non-supply of materials to be supplied by the owner, on account of natural calamities, act of enemies, other difficulties beyond the control of the owner, the owner carries no responsibilities. In no case the Contractor shall be entitled to claim any compensation for loss suffered by him on this account.

None of the materials issued to the contractor, shall be used by the Contractor for manufacturing items which can be obtained from the manufacturers. The materials issued by the owner shall be used for the work only and no other purpose.

Contractor shall be required to execute indemnity bond in the prescribed form for the safe custody and account of materials issued by the owner.

Contractor shall furnish sufficiently in advance a statement of his requirements of quantities of materials to be supplied by the owner and the time when the same will be required for the work, so as to enable Engineer-In-Charge to make arrangements to procure and supply the materials.

A daily account of materials issued by the owner shall be maintained by the contractor showing receipt, consumption and balance on hand in the form laid down by Engineer-In-Charge with all connected paper and shall be always available for inspection in the site office.

Contractor shall see that only the required quantities of materials are got issued and no more. The Contractor shall be responsible to return the surplus materials at owner's store at his own cost.

GC-66 **MATERIALS PROCURED WITH ASSISTANCE OF THE OWNER :**

Notwithstanding anything contained to the contrary in any of the clauses of this contract, where any materials for the execution of the contract are procured with the assistance of the owner either by issue from owner's stock or purchase made under orders or permits or licenses issued materials as trustees for owner, and use such materials not disposed them off without the permission of owner and unserviceable materials that may be left with him after completion of the contract or at its termination for any reason whatsoever on his being paid or credited such price as Engineer-In-Charge shall determine having due regard to the conditions of the materials. The price allowed to Contractor shall not exceed the amount charged to him excluding the storage of breach of the aforesaid condition, the Contractor shall in terms of license or permits and/or for criminal breach of trust be liable to compensate owner at double the rate or any higher rates. In the event of these materials at that time having higher rate or not being available in the market than any other rate to be determined by the Engineer-In-Charge at his decision shall be final and conclusive.

GC-67 **MATERIALS OBTAINED FROM DISMANTLING :**

If the Contractor, in the course of execution of work, is called upon to dismantle any part of work for reasons other than on account of bad or imperfect work, the materials obtained from dismantling will be property of the owner and will be disposed off as per instructions of Engineer-In- Charge in the best interest of the owner.

GC-68 **ARTICLE OF VALUE OF TREASURE FOUND DURING CONS-TRUCTION :**

All gold, silver and other minerals of any description and all precious stones, coins, treasures, relics, antiques and other similar things which shall be found in, under or upon site shall be the property of the owner and the Contractor shall properly preserve the same to the satisfaction of the Engineer-In-Charge and shall hand over the same to the owner.

GC-69 **DISCREPANCIES BETWEEN INSTRUCTIONS:**

If there is any discrepancy between various stipulations of the contract documents or instructions to the Contractor or his authorized representative or if any doubt arises as to the meaning of such stipulation or instructions, the Contractor shall immediately refer in writing to the Engineer-In-Charge and shall hand over the same to the owner.

GC-70 **ALTERATIONS IN SPECIFICATIONS & DESIGNS & EXTRA WORK:**

The Architect / Engineer-In-Charge shall have power to make any alterations in, omission from, addition to substitution for, the schedule of rates, the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of work and the Contractor shall be bound to carry out such altered / extra / new items of work in accordance with any instructions which may be given to him in writing signed by Engineer-In-Charge and such alteration omissions, additions or substitutions, shall not invalidate contract and any altered, additional or substituted work shall be carried out by the Contractor on the same conditions of contract. The time of completion may be extended by Architect as may be considered just and reasonable by him. The rates for such additional, altered or substitute work shall be worked out as under:

a) If the rates for additional, altered or substitutes work are specified in the contract for work, the Contractor is bound to carry out such work at the same rates as specified in the contract.

b) If the rates for additional, altered or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates of similar items of work in the contract work. The opinion of Engineer-In-Charge as to whether the rates can be reasonably so derived the items of contract will be final and binding to the Contractors.

c) If the rates of altered, additional or substitute work cannot be determined as specified in (a) or (b) above, the rate shall be paid as per S.O.R. of RMC and if not available in RMC SOR than it will be paid according to SOR of R&B/GWSSB.

d) If the rates of altered, additional or substitute work cannot be determined as specified in (a) or (b) or (c) above, the Contractor shall within seven days of the receipt of order to carry out the work inform the Architect / Engineer-In-Charge of the rate which he intends to charge for such work supported by rate analysis and the Architect / Engineer-In-Charge will determine the rate on the basis of prevailing market rates of materials, labour cost at schedule of labour plus 15% there on as Contractor's supervision overheads and profit. The opinion of Architect / Engineer-In- Charge as to the market rates of materials and the quantity of labour involved per unit of measurement will be final and binding on Contractor.

But under no circumstances, the Contractor suspends work or the plea of non-settlement of items falling under this clause.

GC-71 **ACTION WHEN NO SPECIFICAITONS ARE ISSUED:**

In case of any class of work for which no specifications is supplied by the owner in the e-Tender documents, such work shall be carried out in accordance with relevant latest ISS and if ISS do not cover the same, the work shall be carried out

as per General Technical Specification for building work; and if not covered in then it is to be with standard Engineering Practice subject to the approval of Engineer-In-Charge.

GC-72 **ABNORMAL RATES:**

Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all specifications and conditions of contract.

GC-73 **ASSISTANCE TO ENGINEER-IN-CHARGE:**

Contractor shall make available to Engineer-In-Charge free of cost all necessary instruments and assistance in checking of any work made by the Contractor setting out for taking measurement of work etc.

GC-74 **TESTS FOR QUALITY OF WORK :**

1. All workmanship shall be of the best kind described in the contract documents and in accordance with the instructions of Engineer-In-Charge and shall be subjected from time to time to such tests at Contractor's cost as the Engineer-In-Charge may direct at the place of manufacture of fabrication or on the site or at any such place. Contractor shall provide assistance, instruments, labour and materials as are normally required for examining, measuring and testing of any work of workmanship as may be selected and required by Engineer-In-Charge.

2. All tests necessary in connection with the execution of work as decided by Engineer-In-Charge shall be carried out at an approved laboratory at Contractor's cost.

3. Contractor shall furnish the Engineer-In-Charge for approval when requested or if required by the specification, adequate samples of all materials and finished goods to be used in work sufficiently in advance to permit tests and examination thereof. All materials furnished and finished goods applied in work shall be exactly as per the approved samples.

GC-75 **ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP :**

If it shall appear to the Engineer-In-Charge that any work has been executed with materials of inferior description, or quality or are unsound or with unsound, imperfect or unskilled workmanship or otherwise not in accordance with the contract, the Contractor shall, on demand in writing from Engineer-In-Charge or his authorized representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the work, so specified. In the event of failure to do so within a period to be specified by the Engineer-In-Charge in his aforesaid demand, Contractor shall be liable to pay compensation at the rate of half a percent of the estimated cost of work for every work limited to a maximum of ten (10%) percent of the value of work while his failure to do so continues and in the case of any such failure, the Engineer-In-Charge may on expiry of the notice period rectify and remove and re-execute the work or remove and replace with others at the risk and cost of the Contractor. The decision of the Engineer-In-Charge as to any question arising under this clause shall be final and conclusive.

GC-76 **SUSPENSION WORK:**

Contractor shall, if ordered in writing by Engineer-In-Charge or his representative temporarily suspended the work or any part thereof for such time (not exceeding one month) as ordered and shall not after receiving such written notice proceed with the work until he shall have received a written order to proceed therewith. The Contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of work as aforesaid. An

extension of time for completion of work will be granted to the Contractor corresponding to the delay caused by such suspension of work if he applies for the same provided the suspension was not consequent upon any default or failure on the part of the Contractor.

GC-77 **OWNER MAY DO PART OF THE WORK :**

When the Contractor fails to comply with any instructions given in accordance with the provisions of this contract, the owner has the right to carry out such parts of work as the owner may designate whether by purchasing materials and engaging labour or by the agency of another Contractor. In such case the owner shall deduct from the amount which otherwise might become due to Contractor, the cost of such work and materials with then (10) percent added to cover all departmental charges and should the total amount thereof exceed the amount due to contract, Contractor shall pay the difference to owner.

GC-78 **POSSESSION PRIOR TO COMPLETION :**

The Engineer-In-Charge shall have the right to take possession of or to use any completed or partly completed work or part of work. Such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the contact. If such prior possession or use by Engineer-In-Charge delays the process of work, equitable adjustment in the time of completion will be made and the contract shall be deemed to be modified accordingly.

GC-79 **COMPLETION CERTIFICATE :**

As soon as the work has been completed in accordance with contact (except in minor respects that do not affect their use for the purpose for which they are intended and except for maintenance thereof) as per General Conditions of Contract the Engineer-In-Charge shall issue a certificate (hereinafter called completion certificate) in which shall certify the date on which work has been completed and has passed the said tests and owner shall be deemed to have taken over work on the date so certified. If work has been divided in various groups in contract, owner shall be entitled to take over any group or groups before the other or others and there upon the Engineer-In-Charge will issue a completion certificate, which will, however, be for such group or groups so taken over.

In order that Contractor could get a completion certificate, he shall make good will all speed any defect arising from the defective materials supplied by Contractor of workmanship or any act or omission of Contractor that may have been discovered or developed after the work or groups of works has been taken over. The period allowed for carrying out such work will be normally, one month. If any defect be not remedied within the time specified, owner may proceed to do work at Contractor's (Agency, or Firm) risk and expenses and deduct from the final bill such amount as may be decided by owner. If by reason of any default on the part of the Contractor, a completion certificate has not been issued in respect of every portion of work within one month after the date fixed by contract for completion of work, owner shall be at liberty to use work or any portion thereof in respect of which a completion certificate has been issued, provided that work or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completion of that work or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completion of that work for the issue of completion certificate.

GC-80 **SCHEDULE OF RATES:**

1. The rates quoted by the Contractor shall remain firm till the completion of the work and shall not be subject to escalation. Schedule of rates shall be deemed to include and cover all costs, expenses and liabilities of every description and risks or every kind to be taken in executing, completing and handing over the work to owner by Contractor. The contractor shall be deemed to have known the nature, scope, magnitude and the extent of work and materials required though contract documents may not fully and precisely furnish them. He shall make such provision

in the Schedule of Rates as he may consider necessary to cover the cost of such items of work and materials as may be reasonable and necessary to complete the work. The opinion of Engineer-In-Charge as to the item of work which are necessary and reasonable for completion of the work shall be final and binding on Contractor although the same may be not shown on drawings or described specifically in contract documents.

2. The Schedule of Rates shall be deemed to include and cover the cost of all constructional plant, temporary work, materials, labour and all other matters in connection with each item in Schedule of Rates and the execution of work or any portion thereof finished complete in every respect and maintained as shown or described in the contract document or as may be ordered in writing during the continuance of the contract.

3. The Schedule of Rates shall be deemed to include and cover the cost of all royalties and fees for the articles and processes, protected by letters patent or otherwise incorporated in or used in connection with work, also all royalties, rents and other payments in connection with obtaining material of whatsoever kind for work and shall include an indemnity to owner which Contractor hereby gives against all action, proceedings, claims, damages, costs and expenses arising from the incorporation in or use on the works of any such articles, processes or materials. Other Municipal or local Board charges if levied on material, equipment or machineries to be brought to site for use on work shall be borne by the Contractor.

4. No exemption or reduction of custom duties, excise duties, sales tax or any other taxes or charges of the Central or State Government or of any Local Body whatsoever will be granted or obtained and all such expenses shall be deemed to have been included in and covered by Schedule of Rates. Contractor shall also obtain and pay for all permits or other privileges necessary to complete the work.(Except GST)

5. The Schedule of Rates shall be deemed to include and cover risk on account of delay and interference with Contractor's conduct of work which may occur from any cause including orders of owner in the exercise of his powers and on account of extension of time granted due to various reasons.

6. For work under unit rate basis, no alteration will be allowed in the Schedule of Rates by reasons of work or any part of them being modified, altered, extended, diminished or omitted.

GC-81 **PROCEDURE FOR MEASUREMENT OF WORK IN PROGRESS:**

1. All measurements shall be in metric system. All the work in progress will be jointly measured by the representative of Engineer-In-Charge and Contractor's authorized agent. Such measurements will be got recorded in the Measurement Book by the Engineer-In-Charge or his authorized representative and signed by the Contractor or his authorized agent in token of acceptance. If the Contractor or his authorized agent fails to be present whenever required by the Engineer-In-Charge for taking measures for every reasons whatsoever, the measurement will be taken by the Engineer-In-Charge or his authorized representative notwithstanding the absence of Contractor and these measurements will be deemed to be correct and binding on the Contractor.

2. Contractor will submit a bill in approved proforma in quadruplicate to the Engineer-In-Charge of the work giving abstract and detailed measurements of various items executed during a month as mutually agreed. The Engineer-In-Charge shall verify the bill and the claim, as far as admissible, adjusted if possible, within 10 days of presentation of the bills.

GC-82 **RUNNING ACCOUNT PAYMENTS TO BE REGARDED AS ADVANCES :**

1. All running account payments shall be regarded as payments by way of advance against the final payment only and not as payment for work actually done and

completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or rejected or to be considered as an admission of the due performance of contract or any part thereof.

2. Five (5) percent of the gross RA Bill amount shall be retained from each bill as retention amount and the same will be paid with the final bill.

GC-83 **NOTICE FOR CLAIM FOR ADDITIONAL PAYMENT :**

If the Contractor considers that he is entitled to extra payment or compensation or any claim whatsoever in respect of work, he shall forthwith give notice in writing to the Engineer-In-Charge about his extra payment and / or compensation. Such notice shall be given to the Engineer-In-Charge within ten (10) days from the happening of any event upon which Contractor basis such claims and such notice shall contain full particulars of the nature of such claim with full details and amount claimed. Failure on the part of the Contractor to put forward any claim with the necessary particulars as above, within the time above specified shall be an absolute waiver thereof. No omission by owner to reject any such claim and no delay in dealing therewith shall waiver by owner or any rights in respect thereof.

GC-84 **PAYMENT OF CONTRACTOR'S BILL :**

1. The price to be paid by the owner to Contractor for the work to be done and for the performance of all the obligations undertaken by the Contractor under contract shall be based on the contract price and payment to be made accordingly for the work actually executed and approved by the Engineer-In-Charge.

2. No payment shall be made for work costing less than Rs.2,00,000/- till the work is completed and a certificate of completion for Construction is given. But in case of work estimated to cost more than Rs.2,00,000/-, Contractor on submitting the bill thereof will be entitled to receive a monthly payment proportionate to the part thereof, approved and passed by Engineer-In- Charge, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against contractor. This payment shall be made after necessary deductions as stipulated elsewhere in the contract documents for materials, security deposit etc. The payment shall be released to the Contractor within two (2) month of submission of the bill duly pre-occupied on proper revenue stamp. Payment due to Contractor shall be made by the owner by ECS/RTGS mode in Indian currency. Successful bidder must furnish his Bank details for RTGS/ECS with Account Branch of RMC.

GC-85 **FINAL BILL :**

The final bill shall be submitted by Contractor within one (1) month of the date of physical completion of work, otherwise the Engineer-In-Charge's certificate of the measurement and of total amount payable for work shall be final and binding on all parties.

GC-86 **RECEIPT FOR PAYMENT :**

Receipt for payment made on account of work when executed by a firm must be signed by a person holding Power of Attorney in this respect on behalf of Contractor except when described in the e-Tender as a limited company in which case the receipt must be signed in the name of the Company by one of its principal officers or by some person having authority to give effectual receipt for the Company.

GC-87 **COMPLETION CERTIFICATE :**

1. When the Contractor fulfils his obligation as per terms of contract, he shall be eligible to apply for Completion Certificate. Contractor may apply for separate Completion Certificate in respect of each such portion of work by submitting the completion documents along with such application for Completion Certificate.

The Engineer-In-Charge shall normally issue to Contractor the Completion

Certificate within one (1) month after receiving an application thereof from Contractor after verifying, from the completion documents and satisfying himself that work has been completed in accordance with and as set out in the construction and erection drawings and the contract documents. Contractor after obtaining the Completion Certificate is eligible to present the final bill for work executed by him under the terms of contract.

2. Within one month of completion of work in all respects Contractor shall be furnished with a certificate by the Engineer-In-Charge of such completion but no certificate shall be given nor shall work be deemed to have been executed until all (i) scaffolding, surplus materials and rubbish is cleaned off site completely, (ii) until work shall have been measured by the Engineer-In-Charge whose measurement shall be binding and conclusive and, (iii) until all the temporary works, labour and staff colonies etc. constructed are removed and the work site cleaned to the satisfaction of the Engineer-In-Charge. If Contractor shall fail to comply with the requirements as aforesaid or before date fixed for the completion of work, the Engineer-In-Charge may at the expense of Contractor remove such scaffolding, surplus materials and rubbish and dispose off the same as he thinks fit.

3. The following documents will form the completion documents: -

a) Technical documents according to which the work has been carried out.

b) Three sets of construction drawings showing therein the modifications and corrections made during the course of execution signed by the Engineer- In-Charge.

c) Completion Certificate for "Embedded" or "Covered" up work.

d) Certificate of final levels as set out for various works.

e) Certificate of test performed for various work.

f) Material appropriation statement for the materials issued by owner for work and list of surplus materials returned to owner's store duly supported by necessary documents. (N.A.)

4. Upon expiry of the period of defect liability and subject to Engineer-In- Charge being satisfied that work has been duly maintained by Contractor during the defect liability period of fixed originally or as extended subsequently and that Contractor has in all respects made up any subsidence and performed all his obligations under contract, the Engineer- In-Charge (without prejudice to the rights of owner in any way) give final certificate to that effect. The Contractor shall not be considered to have fulfilled the whole of his obligation until final certificate shall have been given by the Engineer-In-Charge.

5. **Final Certificate only evidence of completion:**
Except the final certificate, no other certificate of payment against a certificate or on general account shall be taken to be an admission by owner of the due performance of contract or any part thereof of occupancy or validity or any claim by the Contractor.

GC-88 **TAXES, DUTIES, ETC. :**

1. Contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes including Sales Tax, Duties, etc., now or hereinafter imposed, increased or modified from time to time in respect of work and materials and all contributions and taxes for unemployment, compensation, insurance and old age pension or annuities now or hereinafter imposed by the Central or State Government authorities with respect to or covered by the wages, salaries or other

compensation paid to the persons employed by Contractor.

If the Contractor is not liable to Sales Tax assessment, a certificate to that effect from the Competent Authority shall be produced without which final payment to the Contractor shall not be made No P, 'C' and 'D' Form shall be supplied by the owner, and the Contractor shall be required to pay full tax as applicable.

2. Contractor shall be responsible for compliance with all obligations and restrictions imposed by the labour law or any other law affecting employer-employee relationship.

3. Contractor further agrees to comply and to secure the compliance of all sub-contractors with applicable Central, State, Municipal and local laws and regulations and requirement. Contractor also agrees to defend, indemnify the hold harmless the owner from any liability or penalty which may be imposed by Central, State or local authority by reasons of any violation by Contractor or sub-Contractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against owner arising under, growing out of or by reasons or work provided for by this Contract by third parties or by Central or State Government authority or any administrative Sub-Division thereof.

The Sales Tax on work contract will be borne by Contractor.

GC-89 **INSURANCE :**

Contractor shall at his own expenses carry and maintain the reputable Insurance Companies to the satisfaction of owner as follows:

1. Contractor agrees to and uses hereby accept full and exclusive liability for compliance with all obligations imposed by the Employer's State Insurance Act, 1948 and Contractor further agrees to defend, indemnify and hold owner hardness from any liability or penalty which may be imposed by the Central or State Government or local authority by reasons of any assorted violation by Contractor or Sub-Contractor or the Employees State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against owner arising under, growing out of or by reasons of the work provided for by this contract whether brought by employees of Contractor by third parties or by Central or State Government authority or any administrative Sub-division thereof.

Contractor agrees to fill in with the Employees State Insurance Corporation, the declaration form and all forms which may be required in respect of Contractor's or sub-Contractor's employees whose aggregate remuneration is Rs.400/- p.m. or less and who are employed in work provided for or those covered by ESI from time to time under the agreement. The Contractor shall deduct and secure the agreement of the sub-Contractor to deduct the employee's contribution as per the first schedule of the Employees State Insurance Act from wages. Contractor shall remit and secure the agreement of sub-contractor to remit to the State Bank of Indian Employees State Insurance Accounts, the employee's contribution as required by the Act. Contractor agrees to maintain all cards and records as required under the Act in respect of employees and payments and Contractor shall secure the agreements of the sub-contractors to maintain in such records, any expenses incurred for the contributions, making contributions or maintaining records shall be to Contractors or sub-contractors own account. Owner shall retain such sum as may be necessary from the contract value until Contractor shall furnish satisfactory proof that all contribution as required by the Employees State Insurance Act, 1948 have been paid.

2. **Workman's compensation and employee's liability insurance:** Insurance shall be effected for all Contractors employees engaged in the performance of this contract. If any part of work is sublet, Contractor shall require the sub-Contractor to provide workman's compensation and employer's liability insurance, which may

be required by owner.

3. Other Insurance required under law of regulations or by owner Contractor shall also carry and maintain any and all other insurance which may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance, which may be required by owner.

GC-90 **DAMAGE TO PROPERTY:**

1. Contractor shall be responsible for making good to the satisfaction of owner any loss of and any damage to all structures and properties belonging to owner or being executed or procured or being procured by owner or of other agencies within the premises of all work of owner, if such loss or damage is due to fault and / or the negligence of willful act or omission of Contractor, his employees, agent, representatives or sub- Contractor s.

2. Contractor shall indemnify and keep owner harmless of all claims for damage to properties other than property arising under by reasons of this agreement, such claims result from the fault and / or negligence or willful act or omission of Contractor, his employees, agent's representative or sub-contractor.

GC-91 **CONTRACTOR TO INDEMNIFY OWNER :**

1. The Contractor shall indemnify and keep indemnified the owner and every member, officer and employee of owner from and against all actions, claims, demands and liabilities whatsoever under the in respect of the breach of any of the above clauses and / or against any claim, action or demand by any workman / employee of the Contractor or any sub- contractor under any laws, rules or regulations having force of laws, including but not limited to claims against the owner under the workman compensation Act, 1923, the Employee's Provident Funds Act, 1952 and / or the contract labour (Abolition and Regulations) Act, 1970.

2. PAYMENTS OF CLAIMS AND DAMAGES : If owner has to pay any money in respect of such claims or demands aforesaid, the amount so paid and the cost incurred by the owner shall be charged to and paid by Contractor without any dispute notwithstanding the same may have been paid without the consent or authority of the Contractor.

3. In every case in which by virtue of any provision applicable in the workman's Compensation Act, 1923 or any other Act, owner be obliged to pay compensation to workmen employed by Contractor the amount of compensation so paid, and without prejudice to the rights of owner under Section-(12) Sub-section-(2) of the said Act, owner shall be at liberty to recover such amount from any surplus due to on to become due to the Contractor or from the security deposit. Owner will not be bound to contest any claim made under Section-(12) Sub-section-(2) of the said act except on written request of Contractor and giving full security for all costs consequent upon the contesting of such claim.

The Contractor shall protect adjoining sites against structural, decorative and other damages that could be cased to adjoining premises by the execution of these works and make good at his cost, any such damage, so caused.

GC-92 **IMPLEMENTATION OF APPRENTICE ACT 1954 :**

Contractor shall comply with the provisions of the apprentice Act 1954 and the orders issued there under from time to time. If he fails to do so, it will be a breach of contract.

GC-93 **HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS:**

Contractor shall comply with all the rules and regulations of the local Sanitary Authorities or as framed by owner from time to time for the protection of health and provide sanitary arrangements of all labour directly or indirectly employed on

the work of this contract.

GC-94 **SAFETY CODE:**

General:

Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with owner's rules as set forth herein.

1.0 **First Aid and Industrial Injuries:**

1.1 Contractor shall maintain First-Aid facilities for its employees and those of his sub-contractors.

1.2 Contractor shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Name of those providing these services shall be furnished to Engineer-In-Charge prior to start of construction, and their telephone numbers shall be prominently posted in Contractor's field office.

1.3 All injuries shall be reported promptly to Engineer-In-Charge and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to owner.

2.0 **General Rules :**

2.1 Carrying and striking, matches, lighters inside the project area and smoking within the job site is strictly prohibited. Violators of smoking rules shall be discharged immediately. Within the operation area, no hot work shall be permitted, without valid gas, safety, fire permits. The Contractor shall also be held liable and responsible for all lapses of his sub- Contractors / employees in this regard.

3.0 **Contractor's Barricades :**

3.1 Contractor shall erect and maintain barricades without any extra cost, required in connection with his operation to guard or protect during the entire phase of the operation of this contract for -

i) Excavation
ii) Hoisting areas
iii) Areas adjudged hazardous by Contractor's OR Owner's inspectors.
iv) Owner's existing property liable to be damaged by Contractor's operations, in the opinion of Engineer-In-Charge / Site Engineer.

3.2 Contractor's employees and those of his sub-contractors shall become acquainted with owner's barricading practices and shall respect the provisions thereof.

3.3 Barricades and hazardous areas adjacent to but not located in normal routes of travel shall be marked by red lantern at night.

4.0 **Scaffolding :**

4.1 Suitable scaffolding shall be provided for workman for all works that cannot safely be done from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable footholds and handholds shall be provided on the ladder and the same shall be given an inclination not steeper that 1 in 4 (1 horizontal and 4 vertical).

4.2 Scaffolding or staging, more than 3.6 M. (12') above the ground or floor, swing or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise fixed at least 1.0 M (3') high above the floor or platform or scaffolding or staging and extending along the entire length of the outside ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

4.3 Working platforms, gangways, and stairways should be so constructed that they should not sag unduly or inadequately and if the height of the platform or the gangway of the stairway is more than 3.6 (12') above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in 4.2 above.

4.4 Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fail of persons or materials by providing suitable fencing or railing whose minimum height shall be 1.0 M (3'.0").

4.5 Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9.0 M. (30') in length while the width between the side rails in rung ladder shall in no case be less than 30 cms (12 inches) for ladder up to and including 3.0 M. (10'), in longer ladders this width would be increased at least 6 mm (1/4") for each addition 30 c.m. (1.0) of length. Uniform step spacing shall not exceed 30 cms. (12"). Adequate precaution shall be taken to prevent danger from electrical equipment. No materials on any of the side of work shall be so stacked or placed as to cause danger or inconvenience to any person or public. The Contractor shall also provide all necessary all necessary fencing and lights to protect the workers and staff from accidents, and shall be bound to bear the expenses of defence of every suit action or other proceedings at law that may be brought by any persons for injury sustained owning to neglect of the above precautions and to pay damages and costs which may be awarded in any such suit or action or proceedings to any such person, or which, may be with the consent of the Contractor be paid to compromise any claim by any such person.

5.0 Excavation :

5.1 All trenches 1.2 M (4') or more in depth, shall at all-time be supplied with at least one ladder.

5.2 Ladder shall be extended bottom of the trench to at least 3" above the surface of the ground. The side of the trench which are 1.5 M (5') or more in depth shall be stopped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides to collapse. The excavated materials shall not be placed within 1.5 M (5') of the trench of half of the trench depth whichever is more. Cutting shall be done from top to bottom. Under no circumstances, undermining or under cutting be done.

6.0 Demolition :

6.1 Before any demolition work is commenced and also during the progress of the work all roads and open area adjacent to the work site shall either be closed or suitably protected.

6.2 No electric cable or apparatus which is liable to be a source of danger shall remain electricity charged.

6.3 All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion of flooding. No floor or other part of the building shall be so over loaded with debris or materials as to render it unsafe.

7.0 Safety Equipment :

7.1 All necessary personal safety equipment as considered necessary by the Engineer-In-Charge should be made available for the use of persons employed on the site and maintained in a condition suitable for immediate use, and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.

7.2 Workers employed on mixing asphaltic materials, cement and line mortars shall be

provided with protective footwear and protective gloves.

8.0 Risky Place :

8.1 When the work is done near any place where there is a risk of drowning, all necessary safety equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the work.

9.0 Hoisting Equipment :

9.1 Use of hoisting machines and tackles including their attachments, and storage and supports shall conform to the following standards or conditions.

9.2 These shall be of good mechanical construction, sound material and adequate strength and free from patent defect and shall be kept in good condition and in good working order.

9.3 Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.

9.4 Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 215 Monthss should be in-charge of any hoisting machine including any scaffolding.

9.5 In case of every hoisting machine and of every chain ring hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

9.6 In case of departmental machine, the safe work load shall be notified by the Engineer-In-Charge, as regards Contractor s machine, the Contractor shall, notify, the safety working load of the machine to the Engineer-In- Charge. Whenever the Contractor brings any machinery to site of work he should get it verified by the Engineer-In-Charge concerned.

10.0 Electrical Equipment :

Motors, gears, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards, hoisting appliances should be provided with such means when will reduce to the minimum the risk of accidental descent of the load, adequate precautions shall be taken to reduce to the minimum the risk of any part or a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energized, insulating mats, wearing apparel such as gloves, and booths as may be necessary shall be provided. The workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.

11.0 Maintenance of Safety Devices :

All scaffolds, ladders and other safety devices as mentioned or described herein shall be maintained in sound condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near place of work.

12.0 Display of Safety Instructions :

The safety provisions should be brought to the notice of all concerned by display on a Notice Board at a prominent place at the work spot. The persons responsible for compliance of the safety code shall be named therein by the Contractor.

13.0 Enforcement of Safety Regulations :

To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangement made by the Contractor shall be open to inspection by the Welfare Officer, Engineer-In-Charge or Safety Engineer of the

owner or their representatives.

14.0 **No Exemption :**

14.1 Notwithstanding the above clause 1.0 to 13.0 there is nothing to exempt the Contractor from the operations of any other Act or Rules in force in the Republic of India.

14.2 In addition to the above, the Contractor shall abide by the safety code provisions as per C.P.W.D. safety code framed from time to time.

GC-95 **ACCIDENTS :**

It shall be Contractor's responsibility to protect against accidents on the works. He shall indemnify the owner against any claim for damage or for injury to person or property resulting from, and in the course of work and also under the provisions of the workman's compensation Act. On the occurrence of an accident arising out of the works which results in death or which is so serious as to be likely to result in death, the Contractor shall within twenty-four hours of such accident, report in writing to the Engineer-In-Charge, the facts stating clearly and in sufficient details the circumstances of such accident and the subsequent action. All other accidents on the works involving injuries to person or damage to property other than that of the Contractor shall be promptly reported to the Engineer-In-Charge, stating clearly and in sufficient details the facts and circumstances of the accidents and the action taken. In all cases, the Contractor shall indemnity the owner against all loss or damage resulting directly or indirectly from the Contractor's failure to report in the manner aforesaid. This includes penalties or fines, if any, payable by the owner as a consequence of failure to give notice under the Workman's Compensation Act, or failure to conform to the provisions of the said act in regard to such accidents.

In the event of an accident in respect of which compensation may become payable under the Workman's Compensation Act VIII of 1923 including all modification thereof, the Engineer-In-Charge may retain out of money due and payable to the Contractor such sum of sums of money as may in the opinion of Engineer-In-Charge be sufficient to meet such liability. On receipt of award from the Labour Commissioner in regard to quantum of compensation, the difference in amount will be adjusted.

Addl/Asst. Engineer	**Dy. Ex. Engineer**	**ADDL. CITY ENGINEER**
R.M.C.	**R.M.C.**	**R.M.C.**

Signature of Contractor with Seal

PART-II SECTION - 3

TECHNICAL SPECIFICATIONS

PART-II SECTION – 3

TECHNICAL SPECIFICATIONS CONTENT

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:: TECHNICAL SPECIFICATIONS ::

A. GENERAL

1. SCOPE OF CONTRACT:

The work entitled comprise of excavation of trenches with shoring and strutting wherever required bailing out water wherever necessary, laying of pipes, jointing including supply of material and material required for jointing, testing as per specifications, Construction of appurtenances such as brick Masonry Manholes, house chambers etc. as per the type design specified entirely of the specification of various works stipulated in the e- Tender. The work includes supply of sewer pipes i.e. stone ware pipes of ISI Marked and R.C.C. precast manhole frames & covers which shall have to be supplied at site or Municipal store by the contractor at specified and shown in schedule "B". Other material like cement etc shall have to supply by the contractor from open market.

2. e-TENDER PRICE:

The rates quoted in the bill of quantities shall cover everything necessary for the due and complete execution of the work according to the drawings and other condition and stipulations of the contract including specifications of the evident, intend and meaning of all or either of them or according to customary usage and for periodical and final inspection and test and proof of the work in every respect and for measuring, numbering or weighing the same, including setting out and laying or fixing in position and the provision of all materials, power, tools, rammers, labour, tackle, platforms with impervious lapped joints for scaffolding, ranging roads, straight edged, cantering and boxing, wedges, moulds, templates, posts, straight rods, straight edged, cantering and boxing, wedges, moulds, templates, posts, straight rails, boning staves strutting, barriers, fencing lighting pumping apparatus, temporary arrangement for passage of traffic access to premises and continuance to drainage water supply and lighting (if interrupted by contractor's work) temporary sheds, painting, varnishing, polishing establishment for efficient supervision and stating arrangements for the efficient protective of life and property and all requisite plant and machinery of every kind.

The contractor shall keep every portion of the work clear of accumulation from time to time and shall leave every portion of the work clean, clear, perfect and at the conclusion of whole, providing at their own cost all such material implement, appliances and labour as the Engineer in charge may require to prove if it to be so.

3. COMPLETION SCHEDULE:

The contract period shall be as prescribed in tender document, from the date of notice to proceed. The Contractor shall submit his completion schedule and the program of works together with this e-Tender in conformity with completion schedule given in the documents.

4. GENERAL TECHNICAL GUIDELINE:

4.1 All the items occurring in the work and as found necessary during actual execution shall be carried out in the best workman like manner as per specifications and the written order of the Engineer in charge

4.2 Extra Claim in respect of extra work shall be allowed only if such work is ordered to be carried out in writing by the Engineer in charge

4.3 The contractor shall engage a qualified Engineer for the Execution of work who will remain present for all the time on site and will receive instructions and orders from the Engineer in charge or his authorized representative. The instruction and orders given to the contractor representative on site shall be considered as it given to the contractor himself.

4.4 The work order book as prescribed shall be maintained on the site of the work by the contactor and the contractor shall sign the orders given by the inspecting offers and shall carry out them properly.

4.5 Quantities specified in the e-Tender may vary at the time of actual execution and the contractor shall have no claim for compensation

on account of such variation

4.6 Unexcavated lengths shall be left wherever required and so directed by the Engineer in charge during the currency of the contract and shall be tackled. If required, before completion of work.

4.7 Diversion of road, if necessary, shall be provided and maintained during the currency of the contract by the contractor at his cost.

4.8 Figured Dimensions of drawing shall supersede measurements by scale, special dimensions or directions in the specifications shall supersede all other dimensions.

4.9 All levels are given on drawings and the contractor shall be responsible to take regular level on the approved alignment before actually starting the work. The levels shall be commenced to the G.T.S. levels and shall be got approved from the Engineer in charge

4.10 If the arrangement of temporary drainage is required to be made during any work of this Contract, this shall be made by the Contractor without claiming any extra cost.

5. CLASSIFICATION OF STRATA:

5.1 All materials encountered in excavation will be classified in the following groups irrespective of mode of excavating the materials and the decision of the Engineer in charge in this regard shall be final and binding to the contractor.

5.2 Soils :

Soils of all sorts, silt, sand, gravel, soft murrum, stiff clay, kunkar and other soft excavation not covered in the items mentioned hereunder.

5.3 Hard Murrum :

Hard Materials comprising of all kinds of disintegrated rock or shale or indurate conglomerate interspersed with boulders, weathered and decomposed rock which could be removed with pick, bar, shove, wedges and hammers, though not without some difficulties.

5.4 Soft – Rock:

This shall include all materials which is rock but which does not need blasting and can be removed with a pick bar, wedges, pavement breakers, pneumatic tools etc.

5.5 Hard Rock:

This shall include rock accusing in mass or boulders which need blasting, this will also include rock to be removed by chiseling or any other method where blasting is not permissible.

6. The rates are inclusive of dewatering, if required.

7. Regarding water supply for hydro testing, necessary water, Drinking Water, power, labour, etc. required for necessary test shall be arranged by the contractor at his own cost.

8. During construction activity, proper care must be taken for labour safety and must follow the provisions of the Labour laws.

9. TMT bars of Fe-500/500D should be confirming to IS:1786. The approved makes shall be Vizag, Tata, SAIL, Electrotherm, ASR Thermax, Gallant, Aditya or other equivalent make as approved by engineer-in-charge.

10. Cement shall be ordinary Portland cement 53 Grade conforming to IS:269, IS:8112 or IS:12269 for all the works as per the instructions of engineer-in charge. The approved makes shall be Ambuja, Ultratech, Sanghi, ACC, Hathi, Birla, Binani or as per IS confirming. Minimum Cement content for the work should be as per attached circular No. RMC/C/Vigi.(Tech)/231 dt. 11/03/2022.

11. Testing of the materials like Brick, Sand, Aggregate, Reinforcement steel, etc. should have to be tested periodically as suggested by the Engineer-in-charge at Government approved material testing Laboratory and testing charges for the same has to be borne by the contractor.

12. In case of any ambiguity found in inspections / drawings etc, the decision of engineer-in-charge shall be final and binding to the contractor.

B. DETAILED TECHNICAL SPECIFICATIONS

1. Material:

M-1 Water:

Water shall not be salty or brackish and shall be clean, reasonably clear and free from objectionable quantities of silt and traces of oil and injurious alkalis, salts, organic matter and other deleterious material which will either weaken the mortar of concrete or cause efflorescence or attack the steel in RCC container for transport, storage and handling of water shall be clean. Water shall conform to the standards specified in I.S. 456 - Latest edition.

If required by the engineer-in-charge, it shall be tested by comparison with distilled water. Comparison shall be made by means of standard cement tests for soundness, change in time of setting and mortar strength as specified in I.S. 269 (Latest edition). Any indication of unsoundness, change in time of setting by 30 minutes or more or decrease of more than
10 per cint in strength of mortar prepared with water sample when compared with the results obtained with mortar prepared with distilled water shall be sufficient cause for rejection of water under test.

Water for curing mortar, concrete or masonry should not be too acidic or too alkaline. It shall be free of elements which significantly affect the hydration reaction or otherwise interfere with the hardening of mortar or concrete during curing or those which produce objectionable stains or other unsightly deposits on concrete or mortar surface.

Hard and bitter water shall not be used for curing.
Potable water will generally found suitable for curing mortar of concrete.

M-2 Lime:

Lime shall be hydraulic lime as per I S 712 - Latest Edition. Necessary tests shall be carried out as per I S 6932 9 (Parts I to X) Latest edition.

The following field tests for limes are to be carried out:

i) A very rough idea can be formed about the type of lime by its visual examination i.e. fat lime bears pure white colour, lime in form of porous lumps of dirty white colour indicates quick lime and solid lumps are the unburnt lime stone.

ii) Acid tests for determining the carbonate content in lime, lime Excessive amount of impurities and rough determination of lime.

Storage shall comply with I S 712 - Latest Edition. The slaked lime, it stored, shall be kept in a weather proof and damp-proof shed with impervious floor and sides to protect it against rain, moisture, and weather and extraneous materials mixing with it. All lime that has been damaged in any way shall be and all rejected materials shall be removed from site of work.

Field testing shall be done according to I S 269 (latest edition) to show the acceptability of materials.

M-3 Cement:

Cement shall be ordinary portland cement as per IS:269 or IS:8112 and IS:12669 (All Latest edition).

M-4 White Cement:

The white cement shall conform to I S 8042-E Latest edition.

M-5 Colored Cement:

Color cement shall be with white or grey portland cement as specified in the item of the work.

The pigments used for colored cement shall be of approved quality and shall not exceed 10% of cement used in the mix. The mixture of pigment and cement shall be properly ground to have a uniform color and shade. The pigments shall have such properties as to provide for durability under exposure to sunlight and weather.

The pigment shall have the property such that it is neither affected by the cement nor detrimental to it.

M-6 **Sand:**

Sand shall be natural sand or silica, clean well graded, hard strong, durable and gritty particles free from injurious amounts of dust, clay, kankar nodules, soft or flaky particles Shale, alkali, salts organic matter, loam, mica or other deleterious substances and shall be got approved from the engineer-in-charge. The sand shall not contain more than 8 percent of silt as determined by field test. If necessary, the sand shall be washed to make it clean.

Coarse Sand:

The fineness modules of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse shall be as under:

I.S. Sieve Designation	Percentage by weight passing sieve	IS Sieve percentage Designation	by weight percent-age pass-ing sieve.
4.75 mm	100	600 Micron	30-100
2.36 mm	90 to 100	300 Micron	5-70
1.18 mm	70-100	150 Micron	0-50

Fine Sand:

The fineness modules shall not exceed 1.0 The sieve analysis of fine sand shall be as under:

I.S. Sieve Designation	Percentage by weight passing sieve	IS Sieve percentage Designation	by weight percent-age pass-ing sieve.
4.75 mm	100	600 Micron	40-85
2.36 mm	100	300 Micron	5-50
1.18 mm	75-100	150 Micron	0-10

M-7 **Stone Dust:**

This shall be obtained from crushing hard black trap or equivalent. It shall not contain more than 8% of silt as determined by field test with measuring cylinder. The method of determining silt contents by fields test is given as under:

A sample of stone dust to be tested shall be placed without drying in 200 mm measuring cylinder. The quantity if the sample shall be such that it fills the cylinder upto 100 mm mark, the clean water shall be added upto 150 mm mark. The mixture shall be stirred vigorously and content allowed to settle for 3 hours.

The height of silt visible as settled layer above the stone dust shall be expressed as percentage of the height of the stone dust below. The stone containing more than 8% silt shall be washed so as to bring the content within the allowable limit.

The fitness nodules of stone dust shall not be less than 1.80.

M-8 **Stone Grit**:

Grit shall consist of crushed or broken stone and be hard, strong dense durable clean of

proper gradation and free from skin or coating likely to prevent proper adhesion of mortar. Grit shall generally be cubical in shape and as far as possible flaky elongated pieces shall be avoided. It shall generally comply with the provisions of IS 383 (Latest Edition). Unless special stone of particular quarries is mentioned, grit shall be obtained from the best black trap or equivalent hard stone as approved by the engineer-in-charge. The grit shall have no deleterious reaction with cement.

The grit shall conform to the following gradation as per sieve analysis:

I.S. Sieve Designation	Percentage passing through sieve	IS Sieve Designation	percentage passing through sieve
12.50 mm	100%	4.75 mm	0-20%
10.00 mm	85-100%	2.36 mm	0-25%

The crushing strength will be such as to allow the concrete in which it used to build up the specified strength of concrete.

The necessary tests for grit shall be carried out as per the requirements of I S 2386 (Part I to VIII) Latest edition as per instruction of engineer-in- charge. The necessity of test will be decided by the engineer-in-charge.

M-9 **Cinder:**

Cinder is well burnt furnace residue which has been fused or sintered into lumps of varying sizes.

Cinder aggregates shall be well burnt furnaces residue obtained from furnace using coal fuel only. It shall be sound clean and free from clay, dirt, ash or other deleterious matter.

The average grading for cinder aggregate shall be as mentioned below:

I.S. Sieve Designation	Percentage passing	IS Sieve Designation	percentage passing
20 mm	100%	4.75 mm	70
10 mm	86	2.36 mm	52

M-10 **Lime Mortar:**

Lime: Lime shall conform to specification M-2. **Water:** Water shall conform to specification M-1. **Sand:** Sand shall conform to specification M-6.

Proportion of Mix:

Mortar shall consist of such proportions of slaked lime and sand as may be specified in item. the slaked lime and sand shall be measured by volume.

Preparation of Mortar:

Lime mortar shall be prepared by process as per IS 1625 Latest edition. Power drive mill shall be used for preparation of lime mortar. The slaked lime shall be placed in the mill in an even layer and ground for 180 revolutions with a sufficient water. Water shall be added as required during griding (care being taken not to add more water) that will bring the mixed material to a consistency of stiff paste. Thoroughly wetted sand shall then be added evenly and the mixture ground for another 180 revolutions.

Storage:

Mortar shall always be kept damp, protected from sun and rain till used up, covering it by tarpaulin or open sheds.

All mortar shall be used as soon as possible after grinding. It should be used on the day on which it prepared. But in no case, mortar made earlier than 36 hours shall be permitted for use.

M-11 Cement Mortar:

Water shall conform to specification M-1. Cement: Cement shall conform to specifications M-3. Sand: Sand shall conform to M-6.

Proportion of Mix:

Cement and sand shall be mixed to specified proportion, sand being measured by measuring boxes. The proportion of cement will be by volume on the basis of 50 kg/Bag of cement being equal to 0.342 Cu.M. The mortar may be hand mixed as directed.

Proportion of Mortar:

In hand mixed mortar, cement and sand in the specifications shall be thoroughly mixed dry on a clean impervious platform by turning over at least 3 times or more till a homogeneous mixture of uniform color is obtained. mixing platform shall be so arranged that no deleterious extraneous material shall get mixed with mortar or mortar shall flow out. While mixing, the water shall be gradually added and thoroughly mixed to form a still plastic mass of uniform color so that each particle of sand shall be completely covered with a film of wet cement. the water cement ratio shall be adopted as directed.

The mortar so prepared shall be used within 30 minutes of adding water. Only such quantity of mortar shall be prepared as can used within 30 minutes.

M-12 Stone Coarse Aggregate for Nominal Mix Concrete.

Coarse aggregate shall be of machine crushed stone of black trap or equivalent and be hard, strong, dense, durable clean and free from skin and coating likely to prevent proper adhesion of mortar.

The aggregate shall generally be cubical in shape. Unless special stones of particular quarries are mentioned, aggregates shall be machine crushed from the best black trap or equivalent hard tone as approved. Aggregate shall have no deleterious reaction with cement. The size of the coarse aggregate for plain cement concrete and ordinary reinforced cement concrete shall generally be as per the table given below, however, in case of reinforced cement concrete the maximum limit may be restricted to 6 mm, less than the minimum lateral clear distance between bars of 6 mm less than the cover whichever is smaller.

I S Sieve designa-tion	Percentage passing for single sized aggregates of nominal size			IS Sieve desig-nation	Percentage passing for single sized aggregates of nominal size		
	40 mm	20 mm	16 mm		40 mm	20 mm	16 mm
80 mm	--	--	--	12.5 mm	--	--	--
63 mm	100	--	--	10 mm	0.5	--	0.30
40 mm	85-100	100	--	4.75 mm	--	0.20	0.5
20 mm	0-20	85-100	100	2.35 mm	--	0.50	--
16 mm			8-100	--	--	--	--

Note:

This percentage may be the engineer-in-charge when considered necessary for obtaining better density and strength of concrete.

The grading test shall be taken in the beginning and at the change of source of materials. The necessary tests indicated in IS 383 Latest edition and IS 456 Latest edition shall have to be carried out to ensure the acceptability. The aggregates shall be stored separately and handled in such a manner as to prevent the intermixing of different aggregates. If the aggregates are covered with dust, they shall be washed with water to make them clean.

M-13 Black Trap or Equivalent Hard Stone Coarse: Aggregate for Design Mix concrete:

Coarse aggregate shall be of machine crushed stone of black trap or equivalent hard stone and be hard strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.

The aggregates shall generally be cubical in shape. Unless special stones of particular quarries are mentioned, aggregates shall be machine crushed from the best, black trap or equivalent hard stones as approved. Aggregate shall have no deleterious reaction with cement.

The necessary tests indicated in IS 383 Latest edition and IS 456 Latest edition shall have to carried out to ensure the acceptability of the material.

If aggregate is covered with dust, it shall be washed with water to make it clean.

M-14 Brick Bats Aggregate:

Brick bat aggregate shall be broken from well burnt or slightly over burnt and dense bricks. It shall be homogeneous in texture, roughly cubical in shape, clean and free from dirt of any other foreign material. The brick bats shall be of 40 mm to 50 mm size unless otherwise specified in the item. The under burnt of over brunt brick bats shall not be allowed.

The brick bats shall be measured by suitable boxes as directed.

M-15 Bricks:

The bricks shall be hard or machine moulded and made from suitable soils and burnt. They shall be free from cracks and flaws and nodules of free lime. They shall have smooth rectangular faces with sharp corners and shall be of uniform colors.

The bricks shall be moulded with a frog of 100 mm x 40 mm and 10 mm to 20 mm deep on one of it's flat sides. The bricks shall not break when thrown on the ground from a height of 600 mm.

he size of modular bricks shall be 190 mm x 90 mm.

The size of the conventional bricks shall be as under: (9" x 4.3/8" x 2,3/4") 225 x 110 x 75 mm

Only bricks of one standard size shall be used in one work. The following tolerances shall be permitted in the conventional size adopted in a particular work.

Length ±1/8" (3mm) width : ± 1/16" (1.5mm) Height: ± 1/16"
(1.5 mm)

The crushing strength of the brick shall not be less than 35 kg/sq.cm. The average water absorption shall not be more than 20 percent by weight. Necessary tests for crushing strength and water absorption etc., shall be carried out as per IS: 3495 (Part I to IV) - latest edition.

M-16 Stone:

The stone shall be of the specified variety such as granite / trap stone / quarzite or any other type of good hard stones. The stones shall be obtained only from the approved quarry and shall be hard, sound, durable and free from defects like cavities cracks, sand holes flaws, injurious reins, patches of loose or soft materials etc. and weathered portion and other structural defects or imperfection tending to affected their soundness and strength. The stone with round surface shall not be used. The percentage of water absorption shall not be more than 5% dry or wet. When tested in accordance with I.S.1124 - Latest edition. The minimum crushing strength of the stone be 200 kg/sq.cm unless otherwise specified.

The samples of the stone to be used shall be got approved before the work is started.

The khanki facing stone shall be dressed by chisel as specified in the item for khanki facing in required shape and size. The face of the stone shall be so dressed that the bushing on the exposed face shall not project by more than 40 mm from the general wall surface and on face to be plastered it shall not project by more than 19 mm nor shall it have depressions more than 10 mm from the average wall surface.

M-17 Laterite Stone

Laterite stone shall be obtained from the approved quarry. It shall be compacted, in texture, sound, durable and free from soft patchs. Its shall have minimum crushing strength of 10 Kg/sq.cm in its dry condition. It shall not absorb water more than 20 % of its own weight, when immersed for 24 hours in water After quarrying, the stone shall be allowed to weather for some time before using in work. '

The stone shall be dressed into regular rectangular blocks so that all faces are free from waviness and unevenness, and the edges true and square.

Those types of stone in which white cly occurs should not be used. Special corner stones shall be provided where so directed.

M-18 Mild Steel Bars:

Mild steel bars reinforcement for RCC work shall confirm to IS 432 (Part- II) Latest edition and shall be of tested quality. It shall also comply with relevant part of IS 456 Latest edition. All the reinforcement shall be clean and free from dirt, paint, grease, mill scale or loose or thick rust at the time of placing.
For the purpose of payment, the bar shall be measured correct upto 10 mm length and weight payable worked out at the rate specified below:

1	6 mm	0.22 Kg/Rmt	8	20 mm	2.47 Kg/Rmt
2	8 mm	0.39 Kg/Rmt	9	22 mm	2.98 Kg/Rmt
3	10 mm	0.62 Kg/Rmt	10	25 mm	3.85 Kg/Rmt
4	12 mm	0.89 Kg/Rmt	11	28 mm	4.83 Kg/Rmt
5	14 mm	1.21 Kg/Rmt	12	32 mm	6.31 Kg/Rmt
6	16 mm	1.58 Kg/Rmt	13	36 mm	7.99 Kg/Rmt
7	18 mm	2.00 Kg/Rmt	14	40 mm	9.86 Kg/Rmt

M-19 High Yield Strength Steel Deformed Bars:

High yield strength steel deformed bars shall be either cold twisted other rolled and shall conform to IS 1786 Latest edition and IS 1139 Latest edition respectively.

Other provisions and requirements shall conform to specification No.M-18 for Mild Steel Bars.

M-20 High Tensile Steel Wires:

The high tensile wires for use in prestressed concrete work shall conform to IS 2090 Latest edition.

The tensile strength of the high tensile steel bars shall be as specified in the item. In absence of the given strength the minimum strength shall be taken as per part 6-1 of the IS 1785 Latest edition. Testing shall be done as per I S requirements.

The high tensile shall be free from loose mill scale, rust, oil grease, or any other harmful matter. Cleaning of steel bars may be carried out immersion in solvent solution, wire brushing or passing through a pressure box containing carborundum.

The high tensile wire shall be obtained from manufacturer in coil having diameter not less than 350 times the diameter of wire itself, so that wire springs back straight on being uncoiled.

M-20(A) Plain Carbon Drawn Steel Wires:

The plain carbon drawn steel wires for use in precast concrete work shall be conform to IS 1785 (Part-II) Latest edition.

The tensile strength of the P C steel bars shall be as specified in the item. In absence of the given strength, the minimum strength shall be taken as per IS:1785 Latest edition. Testing shall be done as per IS requirements.

The P C steel bars shall be free from loose mill scale, rust, oil grease, or any other harmful matter. Cleaning of steel bars may be carried out immersion in solvent solution, wire brushing or passing through a pressure box containing carborandum.

M-21 Mild Steel Binding Wire:

The mild steel wire shall be of 1.63 mm, 22 mm (16 or 18 gauge) diameter and shall conform to I S 280 Latest edition.

The use of black wire will be permitted to binding reinforcement bars. It shall be free rust, oil paint, grease, loose mill scale or any other undesirable coating which may prevent adhesion of cement mortar.

M-22 Structural Steel:

All structural steel shall confirm to IS 226 Latest edition. The steel shall be free from the defects mentioned in IS 226 Latest edition and shall have a smooth finish. the material shall be free from loose mill scale, rust pits or other defects affecting the strength and durability. River bars shall conform to IS 1148 Latest edition.

When the steel is supplied by the contractor, test certificate of the manufacturer shall be obtained according to IS 226 Latest edition and other relevant Indian Standards.

M-23 Galvanized Iron Sheets :

The galvanized iron sheets shall be plain or corrugated sheets of guages as specified in item. The G.I. Sheets shall conform to I.S.latest edition. The sheets shall be undamaged in carriage and handling either by rubbing off of zinc coating or otherwise. They shall have clean and bright surface and shall be free from bends, holes, rust or white powdery deposit.

The length and width G.I. sheet shall be as directed as per site condition.

M-23-A : G.I. Valleys gutter. ridges :

The G.I. ridges and hips shall be of plain galvanized sheets Class-3 of the thickness as specified in item. These shall be 600 mm in and width and properly bent up to shape without damage to the sheets an in process of bending.

Valleys gutters and flashings shall also be of galvanized sheets of thickness as specified in item. Valleys shall be 900 mm. wide overall and flashing shall be 380 mm. wide overall. They shall be bent to the required shape without damage to the sheet in the process of bending.

M-24. Asbestos Cement Sheets :

Asbestos cement sheets plain, corrugated or semi-corrugated shall - conform shall conform to I.S. latest edition. The thickness of the sheets shall be as specified in The item. the sheets shall be free from all defects such as cracks, holes, deformities, edges or otherwise damaged.

Ridge & Hips :

Ridge and hips shall, be of same thickness as that of A.C. sheets. The types of ridges shall be suitable for the type of sheets and location.

Other accessories to be used in roof such as flashing pieces eaves filler pieces, valley gutters, north light and ventilator curves, barge boards etc. shall be of standard manufacture and shall be suitable for the type of sheets and location.

M-25. Manglore Pattern Roof Tiles :

The mangalore pattern tiles shall conform to I.S. latest edition for Class AA or class A type as specified in item. Sample of the tiles to be provided shall be got approved from the Engineer-in-charge. Necessary tests shall be carried out as directed.

M-26 Shuttering:

The shuttering shall be either of wooden planking of 30 mm minimum thickness with or without sheet lining or of steel plates stiffened by steel angles. The shuttering shall be supported on battens and beams and props of vertical bullies properly cross braced together so as to make the centering rigid. In places of bullies props, brick pillar of adequate section built in mud mortar may be used.

The form work shall be sufficiently strong and shall have camber, so that it assumes correct shape after deposition of the concrete and shall be able to resist forces caused by vibration of live load of men working over it and other incidental load associated with it. The shuttering shall have smooth and even surface. Its joints shall not permit leakage of cement grout.

If at any stage of work during or after placing concrete in the structure, the form work sags or bulges out beyond the required shape of the structure, the concrete and adequately rigid form work. The complete form work shall be got inspected by and got approved from the engineer- in-charge before the reinforcement bars are placed in position.

The props shall consist of bullies having 100 mm minimum dia. measurement at mid length and 80 mm at thin end and shall be placed as per design requirement. These shall rest squarely on wooden sole plates 40 mm thick and minimum bearing area of 0-10 sq.m laid on sufficiently hard base.

Double wedges shall further be provided between the sole pite and the wooden props so as to facilitate tightening and easing of shuttering without jerking the concrete.

The timber used in shuttering shall not be so dry as too absorbed water from concrete and swell or bulge nor so green or wet as the shrink after erection. The timber shall be properly sawn and planned on the sides and the surface coming in contact with concrete. Wooden form work with metal sheet lining or side plates stiffened by steel angles shall be permitted.

As far as practicable, clamps shall be used to hold the forms together and use of nails and spikes avoided.

The surface of timber shuttering that would come in contact with concrete shall be well wetted and coated with soap solution before the concreting is done. Alternatively, coat of raw linseed oil or oil of approved manufacturer may be applied in place of soap solution. In case of steel shuttering either soap solution or raw linseed oil shall be applied after thoroughly cleaning the surface. Under no circumstances, black or brunt oil shall be permitted.

The shuttering for beams and slabs shall have camber of 4 mm per meter (1 in 250) or as directed by the engineer-in-charge, so as to offset the subsequent deflection for cantilevers, the camber of free end shall be 1/50 of the projected or as directed by the engineer-in-charge.

M-27. Expansion joints - Premoulded filler:

The item provides for expansion joints in R.C.C. frame structures for internal joints, as well as exposed joints, with the use of premoulded bituminous joint filler.

Premoulded bituminous joint filler, i.e. performed strip of expansion joint filler shall not got deformed or broken by twisting, bending or other handling when exposed to atmospheric condition. Pieces of joint filler that have been damaged shall be rejected.

Thickness of the pre-moulded joint filler shall be 25 mm. unless otherwise specified.

Premoulded bituminous joint filler shall conform to I.S. Latest edition.

M-28.Expansion joints Copper strips & hold fasts :

The item provide for expansion joints in R.C.C. frame structure for internal joint as well as for exposed joints with the use of necessary copper strip and holdfasts.

Copper sheet shall be of 1.25 mm thick and of 1.25 mm width and the "U" shape in the middle.
Copper strip shall have holdfast of 3 mm diameter copper rod fixed to the plate soldered on strip at intervals of about 30 cm or as shown in the drawing or as directed. The width of each flange (horizontal side) of the copper plate to be emvidded in the concrete work shall be 25 mm. depth of "U" to be provided in the expansion joint, in the copper plate shall be of 25 mm.

M-29. Teak wood :

The teak wood shall be of good quality as required for the item to be executed. When the kind of wood is not specifically mentioned, good Indian teak wood as approved shall be used.

Teak wood shall generally be free from large, loose, dead of cluster knots flaws, shakes, warps, twists, bends; or any other defects. It shall generally be uniform in substance and of straight fibres as far as possible. It shall be free from rot, decay, harmful fungi and other defects of harmful nature, which will affect the strength, durability or its usefulness for the purpose for which it is required. The colour shall be uniform as far as possible. Any effort like paining, using any adhesive resinous materials made to hide the defects shall render the pieces liable to rejection by the Engineer-in-Charge.

All scantlings, planks etc. shall be sawn in straight lines and planes in the direction of grains and of uniform thickness.

The tolerances in the dimensions shall be allowed at the rate of 1.5 mm, per face to be planed.

First class teak wood :

First class teak wood shall have no individual hard and sound knots, more than 6 sq.cm. in size and the aggregate area of such knots shall hot be than 1 % of area of piece, the timber shall be closed grained.

Second Class Teak Wood :

No individual hard and sound knots shall be more than 15 sq.cm. in size and aggregates area of such - knots shall not exceed 2 % of the area of piece.

M-29A. Non-teak wood :

The non-teak wood shall be chemically treated, seasoned as per I.S. Specification and of good quality. The type of, wood shall be got approved before collecting the same an site. Fabrication of wooden members shall be started only after approval.

For this purpose wood of Bio, Kalai, Sires, Saded, Behda, Jamun, Sisoo will be used for door whereas only Kalai, Halda, Sires, Kalam etc. will be permitted far shutters after proper seasoning and chemical treatment, The non-teak wood shall be free from large, loose dead of cluster knots, flows, shakes, warps, bends or any other defects. It shall be uniform in substance and of straight fibres as far as possible. It shall be free from rots, decay, harmful fungi and other defects of nature which will affect the straight durability or its usefulness for the purpose for which it is required. The colour of wood shall-be uniform as far as possible. The scantlings planks etc. shall be saw in straight lines and planes in the direction of grain and of uniform thickness. The department will use the Agency to produce certificate from Forest Department in event of Dispute and the decision of the Department shall be final and binding to the contractor: The tolerance in the dimension shall be allowed at 1.5 mm. per face to be planed.

M-30. Wooden flush door shutters (solid core) :

The solid core type flush door shutters shall be of decorative or non- decorative type as specified in the drawing. The size and thickness of the shutter shall be as specified in drawings or as directed. The timber species for core shall be used as per I.S. Latest edition. The timber shall be free from decay and insect attack. Knots and knot holes less than half the width of cross-section of the members in which they occur may be permitted. Pitch pockets, pitch streaks and harmless pin holes shall be permissible except in the exposed edges of the care members. The commercial plywood, cross-bands shall conform to I.S: latest edition.

The face panel of the shutters shall be formed by gluing by the hot press process on both faces of the care with either, plywood or cross-bands and face veneers. The lipping, rebating, opening of glazing; venetian etc. shall be provided if specified in the drawing.

All edges of the door shutters shall be square. The shutters shall be free from twist of warp in its plant Both faces of the shutters shall be sand papered to smooth even texture.

The shutters shall be tested for

(1) **End immersion test :** The test shall be carried out as per I.S. latest edition. There shall be no delamination at the end of the test.

(2) **Knife test :** The face panel when tested in accordance with I.S. latest edition shall pass the test.

(3) **Glue adhesion test :** The flush door shall be tested for glue adhesive test in accordance with I.S.: latest edition. The shutters shall be considered to have passed the test if no delamination occurs in the glue lines in the plywood and if no single delamination more than 80 mm in length and more than 3 mm in depth has occurred in the assembly glue lines between the plywood face and the style and rail. Delamination at the corner shall be measured continuously around the corner. Delamination at the knots, knot holes and other permissible wood defects shall not be considered in assessing the sample.

The tolerance in size of solid care type flush door shall be as under: In Nominal thickness ± 1.2 mm in Nominal height ± 3 mm.

The thickness of the shutter shall be uniform throughout with a permissible variation of not more than 0:8 mm: when measured at any two points.

M-31.Aluminum doors, windows, ventilators :

Aluminum alloy used in the manufacture of extruded window sections shall conform to I.S. designation HEA-WP of LS. : latest edition and also to I.S. Designation WVG-.WP of I.S. latest edition. The section shall be as specified in the drawing and design. The fabrication shall be done as directed.

The hinges shall be cast or extruded aluminum hinges of same type as in window but of larger size.

The hinges shall normally be of 50 mm. projecting type. Non-projecting type of hinges may also be used if directed. The handles of door shall be of specified design. A suitable lock for the door operable from outside or inside shall be provided. In double, shutter door, the first closing shutter shall have concealed aluminum alloy bolt at top and bottom,

M-32. Rolling Shutters.

The rolling shutters shall conform to I.S. latest edition. Rolling shutters shall be supplied of specified type with accessories. The size of the rolling shutters shill be specified in the drawings. The shutters shall be con- structed with interlocking lath sections formed from cold rolled steel strips not less than 0.9 aim. thick and 80 mm. wide for shutters upto 3.5 mm, width not less than 1.25 mm, thick and 80 mm. wide for shutter 3.5 mm in width and above unless otherwise specified,

Hood covers shall be of mild steel deep channel section and of rolled pressed or build up

(fabricated) jointless construction. The thickness of sheet used shall not be less than 3.5 mm.

Hood covers shall be made of M S Sheets not less than 0.90 mm. thick. For shutters having width 3.5 Meter and above, the thickness of M.S. sheet for the hood cover shall be not less than 1.25 mm.

The spring shall be of, best quality and shall be manufactured from tested high tensile spring steel wire or strip of adequate strength to balance the shutters in all position. The spiting pipe shaft etc, shall be supported on strong M.S. or malleable C.I. brackets. The brackets shall be fixed on or under the lintel as specified with raw plugs and screws bolts etc.

The rolling shutters shall be of self-rolling up to 8 Sq. m. clear area without ball bearing and up to 12 Sq. rn. clear area with ball bearing. If the rolling shutters are of larger, than gear operated type shutters shall be used
The locking arrangement shall be provided at the bottom of shutter at both ends. The shutters shall be opened from outside,

The shutters completed with door suspension shafts, looking arrangements, pulling hooks handles and other accessories.

M-33. Collapsible Steel Gate :

The collapsible steel gate shall be in one or two leaves and size as per approved drawings or as specified. The gate shall be fabricated from best quality mild steel channels, flats etc. Either steel pulleys or ball - bearings shall be provided in every doubly channel, unless otherwise specified the particulars of collapsible gate shall be as under:

(a) **Pickets:** These shall be of 20 mm. M.S. channels of heavy sections unless otherwise shows on drawings. The distance center to center of pickets shall be 12 cms with an opening of 10 Cms.
(b) Pivoted M.& flats shall be 20 mm x 6 mm.
(c) Top and bottom guides shall be from tee or flat iron of approved size.
(d) The fittings like stoppers, fixing hold fasts, locking cleats brass handles and cast iron rollers shall be of approved design and size.

M-34. Welded Steel Wire Fabric

Welded steel wire fabric for general purpose shall be manufactured from cold drawn steel wire "as drawn" or galvanized steel conforming to LS. Latest edition with longitudinal and transverse wire securely connected at every intersection by a process of electrical resistance welding and conforming to I.S. latest edition. It shall be fabricated and finished in workmanlike manner and shall be free from injurious defects and shall be rust proof. The type of mesh shall be oblong or square as directed. The mesh sizes and size of wire for square as well as oblong welded steel wire fabric shall be as directed. The steel wire fabric in panels shall be in one whole piece in each panel as far as stock sizes permit.

M-35. Expanded Metal Sheets :

The expanded metal sheets shall be free from flaws, joints, broken strands, laminations and other harmful surface defects. Expanded metal steel sheet shall conform to I.S. latest edition, except that blank sheets heed not be with guaranteed mechanical properties. The seze of the size of the diamond mesh of expanded metal and dimensions of strands (width and thickness) shall be as specified. The tolerance on nominal weight of expanded metal sheets shall be of 10 percent.

Expanded metal in panels shall be in one whole piece in each panel as far as stocks sizes permit. the expanded metal sheets shall be coated with suitable protective coating to prevent corrosion,

M-36. Mild Steel Wire (Wire Gauze Jali) :

Mild steel wire may be galvanized, as indicated. A11 finished steel wire shall be well cleanly drawn to the dimensions, and size of wire as specified in item. The wire shall be sound, free from splits, surface flaws, rough jagged-and imperfect edges and other harmful surface defect and shall conform to I.S. latest edition.

M-37.Plywood

The plywood for general purpose shall conform I.S. latest edition.
Plywood is made by cementing together thin boards or sheets of wood into panels. There are always an odd number of layers, 3, 5, 7, 9 ply etc. The plies are placed so that grain of each layer is at right angle to the grain in the adjacent layer.

The chief advantages of plywood over a single board of the same thickness is the more uniform strength of the plywood, along the length and width of the plywood and greater, resistance, to cracking and splitting with change in moisture content.

Usually synthetic resins are used for gluing, phenolic resins are usually cured in a hot press which compresses and simultaneously heats the plies between hot plates which maintain a temperature of 90 degree C to 140 degree and a pressure of 11 to 14 Kg/Sq. Cm. on the wood. The time of heating may be anything from 2 to 60 minutes depending upon thickness.

When water glue are used the wood absorbs so much water that the finished plywood must be dried carefully When synthetic resins are used as adhesive the finished plywood must be exposed to an atmosphere of controlled humidity until the proper amount of moisture has been absorbed.

According to I.S. Latest edition, the plywood far general purpose shall be of the grades namely BWR; WWR and CWR, depending upon the adhesives used for bonding the veneers, and it will be further classified into six type namely AA, AB, AC, BB, BC and CC, based on the quality of the two faces, each face being moisture content not less than 8 percent and riot more than 16 percent.

37.A. Thickness of plywood boards

Board	Thickness	Board	Thickness	Board	Thickness	Board	Thickness
3 ply	3 mm	3 ply	5 mm	3 ply	9 mm	3 ply	16 mm
	4 mm		6 mm		13 mm		19 mm
	5 mm		8 mm		16 mm		19 mm
	6 mm		9 mm		13 mm		25 mm

M-38 Glass :

All glass shall be of the bet quality, from specks, bubbles, smokes, veins, air, holes blisters, and other defects. The kind of glass to be used shall be as mentioned in the item or specification or in the special provisions or as shown in detailed drawings. Thickness of glass panes shall be uniform. The specifications for different kinds shall be as under:

Sheet Glass:

In absence of any specified thickness or weight in the item or detailed specifications of the item of work, sheet glass shall be weighing 7.5 Kg/Sq. m. for panes up to 600 mmx500 mm.
For panes larger than 600 mm.x600 mm. and up to 800 mm.x800 mm. the glass weighing not less than 8.75 Kg Sq. m. shall be used. For bigger panes up to 900 mm x900 mm. glass weighing not less than 8.75 Kg/Sq.
m. shall be used. For bigger panes up to 900 mm.x900 mm. glass weighing not less than 11.25 Kg/Sq. M. shall be used
Sheet glass shall be patent flattened glass of best quality and of glazing and framing purposes shall conform to I.S. latest edition. Sheet glass of the specked colour used, if so shown on detailed drawings or so specified. For important buildings and for panes with

any dimension over 900 mm. plate glass of specified thickness shall be used.

Plate Glass :-

When plate glass is specked, it shall be "Polished patent plate glass" of best quality. It shall have both the surface ground late and parallel and polished to obtain clear undisturbed vision and reflection. The plate glass shall be of the thickness mentioned in the item or as shown in the detailed drawing or as specified. In absence of any specified thickness, the, thickness of plate glass to be supplied shall be 6 mm. and a tolerance of 0.20 mrn. shall be admissible.

Obscured Glass:

This type of glass transmits light so that vision is partially or almost completely obscured. Glass shall be plain rolled, figured, ribbed or fluted, or frosted glass as may be specked as required. The thickness and type of glass shall be as per details on drawings or as specified or as directed.

Wired Glass :

Glass shall be with wire netting embedded in a sheet of plate glass. Electrically welded 13 mm. Georgian square mesh shall be used.

Thickness of glass shall not be less than 6 mm. Wired glass shall be of type and thickness as specified.

M-39 Acrylic Sheets :

Acrylic sheet shall be of thickness as specified in the item and of a specked shape size as the case maybe. Panels may be flat or curved. It should be light in weight. It shall be colourless or coloured or opaque as specified in the item. Colourless sheet shall be as transparent as the finest optical glass. Its light transmission rate shall be about 95%. Transparency shall not be affected for the sheets thickness of it shall be extremely resistant to sunlight, weather and temperatures.

It shall not show any significant yellowing or change in physical properties or loss of light transmission over a longer period of use. The sheet shall be impact resistant also. Sheets should be of such quality that they can be cut, bent and jointed, as desired. Solution or the joints shall be used as per the requirement of manufacturer.

M-40. Particle board :

The particle boards used for face panels shall of best quality free from any defects. The particle boards shall be made with phenolamaldehyde adhesive. The particle boards shall conform to IS latest edition "Specific- cation for wood particle board for general purpose" The size and the thickness shall be as indicated.

M-41. Expanded polystyrene or tamed styroper slabs

The expanded polystyrene ceiling boards and tiles shall be of approved make and shall be of size, thickness finish and colour as indicated. It shall be of high density and suitable for use as insulation material. The insulating material shall be like slab of Thermo Cole etc.

M-42. Resian bonded fiber glass :

The resign bonded fiber glass tiles or rolls shall be of approved make and shall be followed.

For test of Mineral wool thermal insulation Blanker IS. : latest edition shall be of sizes, thickness and finish as indicated.

Insulation wood blanket shall be with the following coverings on one or both side as indicated.

(1) Bituminised hessain Kraft paper for use in position where moisture has to be excluded.
(2) Hessian cloth or Kraft paper, for keeping out dust
(3) G. I. wire netting, suitable for surfaces to be plastered over.

M- 43. Fixtures and fastenings

General
The fixtures and fastenings, that is butt, hinges, tee and strap hinges sliding door bolts tower bolts, door latch, bath-room latch, handless door stoppers, casement window fasteners, casement staysand ventilators catch shall be made of the metal as specked in the item or its specification.

They shall be of iron, brass, aluminum, chromium plated iron, chromium plated brass, copper oxidized iron, copper oxidized brass or anodized aluminum as specified.

The fixtures shall be heavy, medium or light type. The fixtures and fastenings shall be smooth finished and shall be such as will ensure ease of operations.

The sample of fixture and fastenings shall be got approved as regards, quality and shape before providing them in position.

Brass and anodized aluminum fixtures and fastening shall be bright finished.

Holdfasts:
Holdfasts shall be made from mild steel flat 30 cm. length and one of the holdfasts shall be bent at right angle and two nos. of 6 mm- diameter holes, shall be made in it for fixing it to the frame with screws. At the other end, the holdfast shall be forked and bent at right angles in opposite directions

Butt hinges:
Railway standard heavy type butt hinges shall be used when so specified. Tee and strap hinges shall be manufactured from M.S. Sheet

Siding door-bolts (Aldrops):
The aldrops as specified in the item shall be used and shall be tot approved.

Tower bolts (Barrel Type):
Tower bolts as specified in the item shall be used and shall be got approved.

Door Latch
The size of door latch shall be taken as the length of latch.

Bathroom Latch
Bathroom latch shall be similar to tower bolt.

Handle
The size of the handles shall be determined by the inside grip length of the handles. Handles shall have a base plate of length 50 mm. more than the size of the handle.

Door Stoppers
Door Stoppers shall be either floor door stopper type or door catch type. Floor stopper shall be of overall size as specified and shall have a rubber cushion.

Door Catch
Door catch shall be fled at a height of about 900 mm. from the floor level such that one part of the catch is fitted on the inside of the shutter and the other part is fixed in the wall with necessary wooden plug arrangements for appropriate fixity. The catch shall be fixed 20 mm. inside the face of the door for easy operation of catch.

Wooden Door Stop with hinges
Wooden door stop of size 100 mm X 60 mm.X 40 mm. shall be fixed on the door frame with a hinge of 75 mm. size and at a height of 900 mm. from the floor level. The wooden door stop shall be provided with 3 coats of approved oil paint.

Casement window Fastener
Casement window fastener for single leaf window shutter shall be left or right-handed as directed.

Casement stays (Straight Peg Stay) :

The stays shall be made from a channel section having three holes at appropriate position so that the window can be opened either fully or partially as directed. Size of the stay shall be 250 mm to 300mm as directed.

Ventilator Catch

The pattern and, shape of the catch shall be as approved.

Pivot
The base and socket plate shall be made from minimum 3 mm. thick plate, and projected pivot shall not be less than 12 mm. diameter and 12 mm. length and shall be firmly riveted to the base plate in case of iron and in single piece in the case of brass pivot.

M-44. Paints :
Oil paints shall be of the specified colour arid shade, and as approved. The ready mixed paints shall only be used. However, if ready mixed paint of specified shade or tint is not available while ready mixed paint with approved stained will be allowed. In such a case, the contractor shall ensure that the shade of the paint so allowed shall be uniform.

All the paints shall meet with the following general requirements

(i) Paint shall not show excessive setting in d freshly opened full can and shall easily be redispresed with a paddle to a smooth homogeneous state. The paint shall show no curdling, livering, caking or colour separation and shall be free from lumps and skins.
(ii) The paints as received shall brush easily, Possess good leveling properties and show no running or sagging tendencies.
(iii) The paint shall not skin within 48 hour in a three quatereds filled closed container. The paint shall dry to the smooth uniform finish free from roughness, grift, unevenness and other imperfections:

Enamel Paints:
The enamel paint shall satisfy in general requirements in specification of oil paints:
Enamel paint shall conform to IS : latest edition.

M-45 French Polish
The French polish of required tint and shade shall be prepared with the below mentioned ingredients and other necessary materials
(i) Denatured spirit of approved quality (ii) Chandras (iii) Pigment.

The French polish so prepared shall conform to IS: Latest edition.

M-46 Marble chips for marble mosaic terrazzo :

The marble chips shall be of approved quality and shades: It shall be hard, sound, dense and homogeneous in texture with crystalline and coarse grains. !t shall be uniform in colour and free from stains, cracks, decay and weathering.

The size of various colour of marble chips ranging from the smallest up to 20 mm. shall be used where the thickness of top wearing layer is 6 mm. size. The marble chips of approved quality and colours only as per grading as decided by the Engineer-in-charge shall be used for marble mosaic tiles or works.

The marble chips shall be machine crushed. They shall be free from foreign matter, dust etc, except as above, the chips shall conform to IS latest edition.

M-47. Flooring Tiles :

(A). Plain Cement tiles

The plain cement tiles shall be of general-purpose type. These are the tiles in the manufacture of which no pigments are used. Cement used in the manufacture of tiles shall be as per Indian Standards.

The tiles shall be manufactured from a mixture of cement and natural aggregates by pressure process. During manufacture, the tiles shall be subjected to pressure of not less than 140 Kg/Sq. Cm. The proportion of cement to aggregate in the backing of the tiles shall be-not less than 1:3 by weight. the wearing face though the tiles are of plain cement, shall be provided with stone chips of 1 to 2 mm. size. The proportions of cement to aggregate in the wearing layer of the tiles shall be three parts of cement to one parts chips by weight. The minimum thickness of wearing layer shall be 3 mm. The colour and texture of wearing layer shall be uniform throughout its face and thickness. On removal from mould, the tiles kept in moist condition continuously at least for seven days and subsequently, if necessary, for such long periods would ensure their conformity to requirements of IS. Latest edition regarding strength resistance to wear and water absorption.

The wearing face of the tiles shall be plane, free from projections, depressions and cracks and shall be reasonably parallel to the back face of the tile. All angles shall be right angle and all edges shall be sharp and true.

The size of tiles shall generally be square shape 24.85 Cm. x 24.85 Cm: or 25 Cm. x 25 Cm. The thickness of tiles shall be 20 mm.

Tolerance of length and breadth shall be plus or minus one millimeter. Tolerance on thickness plus 5 mm.

The tiles shall satisfy the tests as regards transverse strength, resistance to wear and water absorption as per I.S. : Latest edition.

(B) Plain Coloured Tiles:

These tiles shall have the same specification as for plain cement tiles as per (A) above expect that they shall have a plain wearing surface wherein pigments are used. They shall conform to I.S. Latest edition.

The pigments used for colouring cement shall not exceed 10 percent by weight of cement used in the mix. The pigments, synthetic or otherwise, used for colouring tiles shall have permanent colour and shall not contain materials detrimental to concrete.

The colour of the tiles shall be specified in the item or as directed.

(C) Marble Mosaic Tiles:

The tiles same specification as per plain cement tiles except the requirements as stated below:

The marble mosaic tiles shall conform to I.S. latest edition. The wearing face of the tiles shall be mechanically ground and filled. The wearing face of tiles shall be free from projections, depressions and cracks and shall be reasonably parallel to the back face of the tiles. All angles shall be right angles and all edges shall be sharp and true.

Chips used in the tiles be from smallest up to 20 mm. size. The minimum thickness of wearing layer of tiles shall be 6 mm. For pattern of chips to be had on the wearing face, a few samples with or without their full size photographs as directed shall be presented to the Engineer-in-charge for approval.

Any particular samples, if found suitable shall be approved by the Engineer- in-charge, or he may ask for a few more samples to be presented. The samples shall have to be made by the contractor till a suitable sample is finally approved for use in the work. The Contractor, shall ensure that the tiles-supplied for the work shall be in conformity with the approved sample only, in terms of its dimensions thickness of backing layer and wearing surface, materials, ingredients, colour. shade chips, distribution etc. required.

The tiles shall be prepared for cement conforming to Indian Standards or coloured portland cement generally depending upon the colour of tiles to be or as directed.

(D) Chequered Tiles : `

Chequered tiles shall be plain cement tiles or marble mosaic tiles. The former shall have the same specification as per (A) above and the latter as per marble mosaic tiles as per (C) except as mentioned below

The tiles shall be of nominal size of 250 mm. X 250 mm. if specified. The centre to centre distance of chequer shall not be less than 25 mm. and not more than 50 mm. The overall thickness of the tiles shall be 22 mm.

The grooves in the chequers shall be uniform and straight. The depth of the grooves shall not be less than 3 mm. The chequered tiles shall be plain, coloured or mosaic as specified. The thickness of the upper layer measured form the top of the chequers shall not be less than 6 mm. The tiles shall be given the first grinding with machine before delivery to site.

Tiles shall conform to relevant IS: latest edition.

(E) Chequered Tiles For Stair Cases :

The requirements of these tiles shall be the same as chequered tiles as per (D) above except in following respects :

(1) The length of a tile including note shall be 330 mm: (2) The minimum thickness shall be 28 mm: (3) The nosing shall have also the same wearing layer as at the top: (4) The nosing edge shall be rounded.

(5) The front portion of the tiles for minimum length of 75 mm. from and including the nosing shall have grooves running parallel to nosing and at centers not exceeding 25 mm. Beyond that the tiles shall have normal chequer pattern.

M-48. Rough Kotah Stone :

The kotah stones shall be hard, even, sound and regular in shape and generally uniform in colour, The colour of the stone shall generally be green. Brown coloured shall not be use. They shall be without any soft veins, cranks or flaws.

The size of the stones to be used for flooring shall be of size 600 mm. X 600 mm. abd / or size 600 mm. X 450mm as directed. However smaller sizes will be allowed to be used to the extent of maintaining required pattern. Thickness shall be as specified.

Tolerance of minus 30 mm. on accounts of chisel dressing of edges shall be permitted for length as well as breadth. Tolerance in thickness shall be+ 3 mm.

The edges of stones shall be truly chiselled and table rubbed with coarse sand before paving. All angles and edges of the stone of shall be true, square and free from chipping and the surface shall be true and plain.

When machine cut edges are specified, the exposed and the edges at joints shall be machine cut. The thickness of the exposed machine cut edges shall be uniform.

M-49. Polished Kotah Stones :

Polished kot4h stone shall have the same specification as per rough kotah stone except as mentioned below:

The stones shall have machine polished surface. When brought an site, the stones shall be single polished or double polished depending upon its use. The stones for paving shall

generally be single polished. The stones to be used for dedo, skiri thing sink, veneering, sills, steps, etc, where machine polishing after the stone are fixed in situ is not possible shall be double polished.

M-50. Dholpur Stone Stab :

Dholpur stone slab shall be of best quality as approved by the Engineer- in-charge: The stone slab shall be without any veins, cracks, and flaws. The stone slab be even, sound and durable regular in shape and of uniform colour.

The size of the stone shall be as specified in the item or detailed drawing of as approved by the Engineer-in-charge. The thickness of the stone shall be as specified in the item of work with the permissible tolerance of plus or minus 2 mm. the provisions in respect of polishing as for polished kotah stone shall apply to polished Dholpur stone also. All angles and edges of the face of the stone slab shall be fine chiselled or polished as specified in the item of work and ai6 the four edges shall be machine out. All angles and edges of the stone slab shall be true and plane.

The sample of stone shall be got approved by the Engineer-in-charge for a particular work. It shall be ensured that the stones to be used in a particular work shall not differ much in shade or tint from the approved sample.

M-51. Marble Slab :

Marble slab shall be white or of other and of best quality as approved by the Engineer-in-charge.
Slabs shall be hard close, uniform and homogeneous in texture. They shall have even crystalline grain and free from defects and cracks. the surface shall be machine polished to an even and perfect plane surface and edges machine cut true and square. The rar face shall be rough to provide key for the mortar.
Marble slabs with nature veins, if selected shall have to be laid as per the pattern given by the Engineer-in-charge. Size of the slab minimum 460 mm. X 450 mm: and preferably 600 min. X 600 mm. However smaller sizes will be allowed to be used to the extent of maintaining required pattern.

The slab shall not be thinner than the specified thickness at its thinnest part. A few specimen of finished slab to be used shall be deposited by the Contractor in the office for reference.
Except as above, the marble slabs shall conform to IS: Latest edition.

M-52. Granite Stone slab :

Granite shall be of approved colour and quality. The stone shall be hard, even sound and regular in shape and generally uniform in colour. It shall be without any soft veins, cracks of flaws.

The thickness of the stone shall be as specified in item.
All exposed faces shall be double polished tender truly smooth and even reflecting surface. The exposed edges and corners shall be rounded off as directed. The exposed edges shall be machine cut and shall have uniform thickness.

M-53. PVC Flooring

PVC sheet for PVC, floor covering shall be of homogenous flexible type, conforming to I.S. Latest edition. The PVC covering shall neither develop any toxic effect while put to use for shall give off any disagreeable odour.

Thickness of flexible type covering Ales shall be as specified in the description of the item. The flexible shall be backed with hessian or other woven fabric. The following tolerances shall be applicable on the nominal dimensions of the folls or tiles :

(a) Thickness ± 15 mm.
(b) Lengh of Width :

1. 300 rnm. square tiles ± 0.20 mm
2. 600 mm. Square tiles ± 0.40 mm.
3. 900 mm, square tiles ± 0.60 mm,
4. Sheets and roll ± 0.10 percent.

Adhesive:

The adhesive for PVC flooring shall be of the type and make recommended by the manufactures of PVC sheets/tiles.

M-54 Facing Tiles

The facing tiles (burnt clay facing bricks) shall be free from cracks and nodules of free lime. They shall be thoroughly burnt and shall have plane rectangular faces with parallel sides and sharps straight right angled faces.. The texture of the finished surface that will be exposed when in place shall conform to an approved sample consisting not less than four stretch bricks each representing the texture desired. The facing tiles shall have a pleasing appearance sufficient resistance to penetration by rain and greater durability than common bricks. The tiles shall conform to I.S.Latest edition.

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The standard size of facing brick tiles shall be 19 x 9 x 4 cms. The facing brick tiles shall be provided with frog which shall conform to IS: Latest edition.

The permissible tolerance in dimensions specified above shall be as follows:

Size	Tolerance for	
	1st class brick	2nd class brick
19	± 6 mm	± 10 mm
9	± 3 mm	± 7 mm
4	± 1.5 mm	± 3 mm

The tolerance for distortion or warpage of face or edges of individual brick form a plane surface and from a straight line respectively shall be as follows:

Facing dimensions	**Permissible tolerance**
Max. below 19 cms	Max 2.5 mm
--do-- above 19 mm	Max 3.0 mm

The average compressive strength obtained as a sample of five tiles when tested in accordance with the) procedure laid as per IS: Latest edition shall be not less than 175 Kg/Sq. Cm. The average compressive strength of any individual bricks shall be not less than 160 Kg/Sq. Cm.

The average water absorption for five bricks tiles shall not exceed 12 percent of average weight of brick before testing. The absorption for each individual bricks shall not exceed 25 percent.

The brick tiles when tested in accordance with IS: Latest edition, the rate of efflorescence shall not be more than "Slightly effloresced'

M-55. White glazed tiles

The tiles shall be of best quaky as approved by the Engineer- in-charge. They shall be foat and true to shape. They shall be free from cracks, crazing spots, chipped edges and corners. The glazing shall be of uniform shade.

Variation from the stated sizes, other than the thickness of tile shall be plus or minus 1.5 mm. The thickness of tile shall be 6 mm. Except as above the tiles shall conform to I.S. Latest edition.

M-56. Galvanized Iron Pipes and Fittings:

Galvanized iron pipe shall be of the medium type and of required diameter and shall comply with IS: latest edition. The specified diameter of the pipes shall refer to the inside diameter of the bore. Clamps, screw and all galvanized iron fittings shall be of the standard 'R' or equivalent make.

M-57. Bib cock and stop cock:

A bib cock is a draw off tap with a horizontal inlet and free outlet. A stop cock is a valve with a suitable means of connection for insertion in a pipeline for controlling or stopping the flow.

They shall be of screw down type and or brass chromium plated and of diameter as specified in the description of the item. They shall conform to IS: latest edition and they shall be of best Indian make. They shall be polished bright.

The minimum finished weight of bib cock and stop cock shall be as given below:

Diameter	Bib cock	Stop cock	Diameter	Bib cock	Stop cock
8 mm	0.25 kg	0.25 kg	15 mm	0.40 kg	0.40 kg
10 mm	0.30 kg	0.35 kg	20 mm	0.75 kg	0.75 kg

M-58. Gun metal wheel valve:

The gun metal wheel valve shall be of approved quality. These shall be of gun metal fitted with wheel and shall be of gate valve opening full way and of the size as specified. These shall conform to IS: latest edition.

M-59. White glazed porcelain wash basin:

Wash basin shall be of white porcelain first quality best Indian make and it shall conform to IS: latest edition. The size of the wash basin shall be as specified in the item. Wash basin shall be of one piece construction with continued over flow arrangements. All internal angles shall be designed so as to facilitate cleaning. Wash basin shall have single tap hole or two holes as specified. Each basin shall have a circular waste hole which is either revated or beveled internally with 65 mm diameter at top and 10 mm depth to suit the waste fitting. The necessary stud slot to receive the bracket on the underside of the basin shall be provided. Basin shall have an internal soap holder recess which shall fully drain into the bowl.

White glazed pedestal of the quality and color as that of the basin shall be provided where specified in the item. It shall be completely recessed at the back for reception of supply and wash pipe. It shall be capable of supporting the basin rigidly and adequately and shall be so designed as to make the height from the floor to top of the rim of basin 750 mm to 800 mm as directed.

M-60. European type water closet with low level flushing:

The European type water closet shall be white glazed porcelain first quality and shall be of wash down type conforming to IS: latest edition.

'S' trap shall be provided as required with water seal not than 50 mm. The solid plastic seal and cover shall be of best Indian make conforming to IS: latest edition. They shall be made of moulded synthetic materials which shall be tough and hard with high resistance to solvents and shall be free from blisters and surface defects and shall have chromium plated brass hinges and rubber buffer of suitable size.

M-61. Orissa type water closet:

The specification of Orissa type white glazed water closet of first quality shall conform to IS: latest edition and relevant specification of Indian type water closet except that pan will be with the integral squatting pan of size 580 x 440 mm with raised footrest.

M-62. Indian type water closet:

The Indian type white glazed water closet of first quality shall be of size as specified in the item and conforming to IS: latest edition. Each pan shall have integral flushing. It shall also have an inlet at back or front for connecting flush pipe as directed. The inside of the bottom of the pan shall have sufficient slope from the front towards the outlet and surface shall be uniform and smooth. Pan shall be provided with 100 mm. diameter "P" or "S" trap with approximately 50 mm, Water seal and 50 mm. diameter vent horn.

M-62 A Foot Rests

A pair of white glazed ear-then ware rectangular foot of minimum size 250 mm. x 130 mm x 20 min shall be provided with the water closet.

M-63 Glazed Earthen Ware Sink

The glazed earthen ware sink shall be of specified size, colour and quality. The sink shall conform to I. S. latest edition. The brackets for sinks shall conform to IS: latest edition.

The pipes shall conform to I.S. latest edition for steel and lead pipes respectively. 32 min. brass waste coupling of standard pattern with brass chain and rubber plug shall he provided with sink.

M-64. Glazed earthen-ware Lipped type flat back urinal / corner type urinal.

The lipped type shall be flat back or corner type as specified in the item and shall conform to IS: Latest edition. It shall be of best Indian make and size as specified arid approved by the Engineer-in-charge. The flat back or corner type urinal must be of 1st quality free from any defects, cracks etc.

M. 65. Low level enamel flushing tank

The low level enamel flushing tank shall be of 15 litres capacity. It shall conform to IS: latest edition. The flushing cistern shall be of best quality and free from any defects. The flushing tank shall have outlet 32 mm. diameter. The outlet shall he connected with WC. Pan by lead pipe or PVC pipe as specified. The flushing cistern shall be provided with inlet and outlet for fixing G.I. inlet pipes and overflow pipes. The flushing cistern shall be provided with chromium plated handle for flushing. The flushing tank shall be provided with bracket of cast iron so that it can be fixed on wall at specified height. The, brackets shall conform to I.S. latest edition.

M-66. Cast iron flushing cistern.

The cast iron flushing cistern shall be of 15 litres capacity. It conform to IS. latest edition, The flushing cistern shall be of best quality free from any defects, The flushing cistern shall have outlet of 32 mm. diameter. The lead pipe shall conform IS: latest edition. For fixing G.I. inlet pipes and overflow pipe 20 mm dia inlet and outlet shall he got provided. The flushing, cistern shall be provided with galvanized iron chain and pull of sufficient length and shall be got approved from the engineer-in-charge. The cast iron flushing cistern shall be painted with one coat of anti-corrosive paint and two coats of paints. The flushing cistern shall be fixed on two C.I. brackets. The C.I. bracket shall conform to IS: latest edition.

M-67 Flush Cock

Half turn flush cock (Heavy weight) shall be of gun metal chromium plated of diameter as specified in the description of the item. The flush cock shall conform to relevant Indian Standard.

M-68 Cast iron pipes and fittings.

All soil, water, vent and antisyphonage pipe and fitting shall conform to IS: latest edition. The pipe shall have spigot and socket ends with head on spigot end. The pipes and fittings shall be true to shape, smooth, cylindrical their inner and outer surfaces being as nearly as practicable concentric. They shall be sound and nicely cast and shall be free from cracks, laps pinholes or other imperfection and shall be neatly dressed and carefully settled.

The end of pipes and fittings shall be, reasonable square to their axis.
The sand cast iron pipes shall be of the diameter as specified in the description and shall be in lengths of 1.5 M, 1.8 M. and 2 M. including socket ends of the pipe unless shorter lengths are either specified or required at junctions etc. The pipes and fittings shall he supplied without ears unless specified or directed otherwise.

Tolerances

The standard weights and thickness of pipes shall be as shown in the following table:

Sr No	Nominal dia. of bore	Thickness	Overall	Weight of pipe	Excluding ears
1	75 mm	5.0 mm	1.5 m long 12.83 kg	1.8 m long 16.52 kg	2 m long 18.37 kg
2	100 mm	5.0 mm	18.14 kg	21.67 kg	24.15 kg

A tolerance up to minus 15 percent in thickness and 20 mm in length will be allowed. For fittings tolerance in lengths shall be plus 25 mm and minus 10 mm.

The thickness of fittings and their socket and spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes. The tolerance in weights and thickness shall be the same as for straight pipes.

M-69. Nahni Trap:

Nahni trap shall be of cast iron and shall be sound and free from porosity or other defects which affect serviceability. The thickness of the base metal shall not be less than 6.5 mm. The surface shall be smooth and free from craze, chips and other flaws or any other kind of defect which affect serviceability. The size of nahni trap shall be as specified and shall be of self-cleaning design.

The nahni trap shall be of quality approved by the engineer-in-charge and shall generally conform to the relevant Indian Standard.

The nahni provided shall be with deep seal, minimum 50 mm except at places where trap with deep seal cannot be accommodated. The cover shall be cast iron perforated cover shall be provided on the trap of appropriate size.

M-70. Gully Trap:

The gully trap shall conform to IS: latest edition. It shall be sound, free from defects such as fire cracks or hair cracks. The glaze of the traps shall be free from crazing. They shall give a sharp clear note when struck with light hammer. There shall be no broken blisters.

The size of the gully trap shall be as specified in the item.

Each gully trap shall have one C.I. grating of square size corresponding to the dimensions, of inlet of gully trap. It will also have a water tight C.I. cover with frame inside dimension 300 mm x 300 mm. The cover with frame inside dimensions 300 mm x 300 mm the cover weighing not less than 4.53 kg and the frame not less than 2.72 kg. The grating cover and frame shall be of sound and good casting and shall have truly square machined seating faces.

M-71. Glazed stone ware pipe and fittings:

The pipes and fittings shall be of best quality as approved by engineer-in- charge. The pipe shall be of best quality manufactured from stoneware of fire clay, salt glazed thoroughly burnt through the whole thickness, of a close even texture, free from air blows, fire blisters, cracks and other imperfections, which affect the serviceability. The inner and outer surfaces shall be smooth and perfectly glazed. The pipe shall be capable to withstand pressures of 1.5 m lead without showing sign of leakage. The thickness of the wall shall not be less than 1/12th of the internal dia. the depth of socket not be less than 38 mm. The socket shall be sufficiently large to allow a joint of 6 mm around the pipe.

The pipes shall generally conform to relevant IS latest edition.

M-72. Wall Peg Rail:

The aluminum wall peg rail shall have three aluminum pegs of approved quality and size. It shall be fixed on teak wood plank of size 450 mm x 20 mm. The teakwood shall be French

polished or oil painted as specified.

M-73. G.I. Water Spot:

The G.I. pipes of 40 mm dia. shall be of medium quality and specials shall be of 'R' brand or equivalent of the best approved quality.

The pipe shall have length as required for the thickness of wall in which it is fixed, and at outside end tee and bend cut at half the length shall be provided and at other end, coupling shall be provided to have better fixing. The water spout shall be provided as per detailed drawing or as directed.

M-74. Asbestos Cement Pipe (A.C. Pipe)

The asbestos cement pipe of diameter as specified in the description of the item shall conform to I.S. latest edition. Special like bends, shoes, cowls etc. shall conform to relevant Indian Standards. The interior of pipe shall have a smooth finish, regular, surface and regular internal diameter. The tolerance in all dimension shall be as per IS: latest edition.

M-75. Crydon Ball valve

Ball valve of screwed type including polythene float and necessary level etc. shall be of the size as mentioned in the description of item and shall conform to IS: latest edition.

M-76. Bitumen Felt For Water Proofing And Damp Proofing

Bitumen felt shall be on the fiber bases and shall be of type 2, self-finished felt grade-2 and shall conform to IS: latest edition.

M-77. Selected Earth

The selected earth shall be that obtained from excavated material or shall have to be brought from outside as indicated in the item. If item does not indicate anything the selected earth shall have to be brought from outside.

The selected earth shall be good .yellow soil and shall begot approved from the Engineer-in-charge. In no case black cotton soil or similar expensive and shrinkable soil shall be used. It shall be clean and free from all rubbish and perishable materials, stones or brick bats. The clods shall be broken to a size of 50 mm. or less. Contractor shall make his own arrangement at his own cost for land for borrowing selected earth. The stacking of material shall be done as directed by the Engineer-in-charge in such a way as not to interfere with any constructional activities and in proper stacks.

When excavated material is to be used, only selected stuff got approved from the Engineer-in-charge shall be used. It shall lie stacked separately and shall comply with all the requirements of selected earth mentioned above.

M-78. Barbed Wire.

The barbed wire shall be of galvanized steel and it shall generally conform to IS: latest edition. The barbed wire shall be of type-I whose nominal diameter for line wire shall be 2.5 mm and point wire 2.24 mm. The nominal distance between two barbs shall be 75 mm, unless otherwise specified in the item. The barbed wire shall be formed by twisting together two line wires, one containing the barbs. The size of the line and point wires and barb spacing shall be as specified above. The permissible deviation from the nominal diameter of the line wire and point wire shall not exceed 0.08 mm.
The barbs shall carry four points and shall be formed by twisting two point wires, each two turns, lightly round one line wire, making altogether four complete turns. The barbs shall be so finished that the tour points are set and locked at right angles to each other. The barbs shall have a length of not less than 13 mm. and not more than 18 mm. The point shall be sharp and cut at an angle not greater than 35 degree of the axis of the wire forming the barbs.

The line and point wires shall be circular section, free from scale and other defects and shall be uniformly galvanized. The line wire shall be in continuous length and shall not contain any welds other than those in the rod before it is drawn. The distance between

two successive splices shall not be less than 15 meters.

The lengths per 100 Kg. of bar-bed wire IS: type I shall be as under: Nominal 1000 meters. Minimum 934 Meter. Maximum 1066 Meter.

M-79 Admixture for mass concrete and mortar:

M-79A) Joint Sealant

The sealant shall be best quality and from manufacturer like CICO, Fosroc MC- BAUCHEMIE, PIDILITE, HMP or equivalent as approved by engineer- in-charge. The prior approval for the source shall be taken from the engineer-in-charge. It shall be conformed to the relevant I.S. Code.

It shall be two component polysulphide rubber joint sealant, based on a low molecular weight polymer. It should not contain chloride or other corrosive substances.

It shall be used for sealing joints in water retaining structure, roofs, external wall, cladding, floors, partition, sealing, pavement surface etc. It shall have excellent property to adhere most of building material like aluminum, stainless steel, glass, concrete, marble, stone, brick, masonry block, plaster, ceramic, quarry tiles, timber etc. The modulus of elasticity of the sealant shall be less than 0.16 MPa, ±10% at 100% elongation. The shore "A" hardness of the sealant shall be 22±3 @ 250C.

The operating temperature range for the sealant shall be 250C to 800C. The permanent dynamic movement capability of the sealant shall be ±25%. The tensile strength of the sealant shall not be less than 0.4 MPa. The optimum width / depth ratio shall be 2:1. The specific gravity of the sealant shall be 1.6 Kg/Lit. The sealant should be capable to resist to attack of water, sunlight, oxidation, corrosive fumes, oils, petrol, diluted acids and alkalies, salt spray, aliphatic and aromatic solvent and shall not contain tar or bituminous ingredients.

It shall possess the properties like 550% elongation at break, non-toxicity when fully cured, no staining and shrinkage less than 1%. The trafficable strength shall be achieved within 24 hours and full at 7 days (at 250C and 250% RH). It shall possess excellent coverage capacity and more strength at low dry temperature.

M-79B) Abrasion Resistant Industrial Flooring Aggregate:

The flooring aggregate shall be of best quality and from manufacturer like CICO, Fosroc or equivalent, as approved by the engineer-in-charge. The prior approval for the source shall be taken from the engineer-in- charge. It shall be conformed to the relevant I.S. Code.

The flooring aggregate shall be factory processed and specially graded non- oxidized, non-magnetic and chemically inert metallic flooring aggregate, free from oil and grease.

It shall be used as a surface hardener to concrete floors. It is recommended for factory floors, warehouses, hangers, car parks and such other areas subjected to heavy vehicular traffic. It shall also be used on open and continuously wet surfaces. The flooring aggregate shall build in wearing resistance and shall produce high abrasion resistant floor surfaces. It shall impart extreme surface density and shall offer resistance to oil and water penetration. It shall provide a non-rusting floor surface which is easy to maintain.

It shall be used with cement in the ratio, as per manufacturer's instruction and spread evenly on the surface to be treated, at the rate depending on the type of floor. The flooring aggregate shall be spread when the surface of the concrete floor is still fresh, i.e. as soon as the surface water has evaporated and then trawled, in stage, to bring about an uniform and smooth finish.

M-79C Concrete Hardener and Dust Proofer :

The concrete hardener and dust proofer, shall be of the best quality and from manufacturer like CICO, Fosroc or equivalent, as approved by the engineer-in- charge. The prior approval for the source shall be taken from the engineer-in- charge. It shall be conformed to the relevant I.S. Code.

It shall have a specific gravity of 1.18 and shall be applied on concrete floors, at the rate of at least 25 liter/100 m2/coat. A total of 3 coats shall be applied for permanently hardened concrete floor, with increased abrasion resistance, increased surface density, increased resistance to chemical attack and to eliminate dust accumulation. Drying time of 4 to 6 hours for each coat shall be allowed before the flooring is put to use or is applied with another coat of the product. Precautions shall be taken while using the product, to avoid contact with eye and open wounds and to work in good ventilation. After application, the affected part shall be washed copiously. It shall not be stored for the period of more than two months before use.

M-79D Water Repellent Coating :
The water repellent coating shall be of the best quality and from manufacturer like CICO, Fosroc or equivalent, as approved by the engineer-in- charge. The prior approval for the source shall be taken from the engineer-in-charge. It shall be conformed to the relevant I.S. Code.
Water repellent coatings for exterior exposed surfaces shall be acrylic resin based, having a Flash point of approx. 40°C and specific gravity of 0.95.

It shall be suitably used for concrete, brick, stone and plastered surfaces preventing moisture penetration and thus any damage to the interiors. It shall be quick acting, long lasting, invisible i.e. colourless so as to maintain the original colour of the surface treated. It shall impart sealing characteristics so that the treated surface becomes stain and dust free. The coating itself shall not darken or turn yellow with age.

M-79E Accelerating, Water Reducing Admixture and Plasticizer :
The Accelerating, Water reducing admixture and plasticizer, shall be of best quality and from manufacturer like CICO, Fosroc or equivalent, as approved by the Engineer. The prior approval for the source shall be taken from the Engineer. It shall conform to the relevant IS Code.

It shall be in liquid state with a specific gravity of 1.30 and complying with- ASTM C-494 Type E, IS : 9103 & IS: 2645. It shall accelerate the setting and hardening of the concrete mix, thereby achieving higher early age strength. It shall reduce the water content of the concrete without affecting its workability. It is useful for pre-cast/pre-stressed works, structural concrete works, floors, roads, runways, paving etc. It shall be used at the rate instructed by the manufacturer, with cement, depending on the amount of acceleration of hardening required, it should be compatible
to all types of cement.

M-79F Retarding, Water Reducing Admixture and Plasticiser :
The Retarding, water reducing admixture and plasticiser, shall be of best quality and from - manufacturer like CICO, Fosroc, Feb Roffe or equivalent, as approved by the Engineer. The prior approval for the source shall be taken from the Engineer. It shall conform to the relevant IS Code.

It shall be in liquid state with a specific gravity of 1.22 and complying with ASTM C-494 Type B & D, IS 9103, CRD-C87 Type B & D, BS 5075 Part 1. It
shall be added to the concrete mix during the mixing process, at the same time as the water or the aggregates. No extension of normal mixing time is necessary. It shall extend the period of time as to placing the concrete and compacting, i.e. delay the initial and final setting time. It shall help to spread the heat of hydration over a longer period of time. It shall give a highly workable concrete with a low W/C ratio. It shall
be used at the rate instructed by the manufacturer, with cement, depending on the amount of acceleration of hardening required. It should be compatible to all types of cement.

M-79G Water & Weather Proof Compound :
The water & weather proof integral cement admixture shall be of best quality and from manufacturer like Feb Roffe's Roff Hyseal, Roff hyproof, Algiproof or equivalent, as approved by the Engineer. The prior approval for the source shall be taken from the Engineer. It shall conform to the relevant IS Code.

It shall be used as an excellent cement admixture in all types of concrete/plaster mortars, pointing mortars, masonry works, guniting works and pressure grouting works. It shall improve resistance of concrete surfaces to weathering and chemical attack. It shall be non-toxic so as to use for water proofing water tanks, reservoirs, bio-gas tank, leaking ceiling, basements,

tunnels, lift wells etc.

It shall be mixed to concrete or plaster mortar, while mixing. First, water is added and then the admixture, at the rate instructed by the manufacturer. For use of the admixture, precaution shall be taken to use clean materials for preparation of mortar.

M-79H Plaster Admixture :
An admixture which gives the plaster workability, durability and quality at an economical rate shall be of best quality from manufacturer like Feb Roffe (product name - Roff plaster master) or equivalent, as approved by the Engineer. It shall comply to the relevant IS Codes.

It shall keep the plastering mortar plastic for a longer time, giving higher strength on prolonged curing. It shall provide cohesiveness, workability and eliminate efflorescence. It shall reduce shrinkage, cracking and crazing to the minimum.

M-80 Fly Ash :
Fly Ash of grade-I as per IS: 3812-1981 shall be from Sikka Thermal Power Station Only. Contractor has to manage for required size containers at site work for storing the Fly ash.

M-81 Anti-Corrosive Paints: M-81A Ferroshield:
It shall be from STP Limited or equivalent, as approved by the Engineer.

It shall be a high build bituminous emulsion, specially formulated for protection against corrosion. It shall form a dry film, 2 mm. thick, which shall not crack at low temperatures nor crocodile at-very high temperatures. It shall also be used as waterproofing material on flat, sloped and steeped roofs. It shall be applied by brush and by heavy duty airless spraying. ..

M-81B Tankmastic:
It shall be from STP Limited or equivalent, as approved by the Engineer. It shall conform to IS : 158- 9862.
It shall be special bituminous paint, which shall have no harmful reaction on drinking water. It shall be used to protect the inside of water tanks and pipe connections, against corrosion. It shall be applicable on steel, wood, concrete, iron etc. It shall have a covering capacity of $12m^2$/lit.

M-81C Pipekote:
It shall from STP Limited or equivalent, as approved by the Engineer. It shall conform to IS: 158.
It shall be a heavy duty bituminous paint, which shall not impart any odour or taste to water, carried in the steel water pipelines, tanks and pen-stocks. It shall be applied on the inside surface of the water pipe line, tanks and pen- stocks. It shall be resistant to mild acids, alkalis and shall withstand heat upto $150^{\circ}C$. It shall render a heavy body protective film. If zinc-rich, epoxy primer shall be used, better results of pipekote shall be obtained.

M-81D Silver Shield:
It shall be from STP Limited or equivalent, as approved by the Engineer.

It shall be a bituminous aluminum-finish paint formulated for application over anti-corrosive paints. It shall have a covering capacity of 10 m^2/lit..

M-81E Shalimastic HD:
It shall be from STP Limited or equivalent, as approved by the Engineer. It shall comply with the US Dept. of interior bureau of reclamation specification CA- 50.

It shall be a viscous, heavy-duty, anti-corrosive waterproof coal tar paint. It shall offer resistance to acids and alkalis. It shall be used for protection of all types of iron and steel structures.

M-82 Galvanized Iron Pipe:
Galvanised iron pipe shall be of the medium type and of required diameter and shall comply

with IS 1239-1975. The specified diameter of the pipes shall refer to all inside diameter of the bore, clamps, screw and all galvanised iron fittings shall be of standard 'R' or equivalent make as approved by the Engineer.

M-83 Acoustical Wall & Ceiling material: - M-83a Glass wool:-

I. Glass wool shall be conform as per relevant I.S. standard & specification.
II. Density, & thickness shall be used as per specified in item specification.
III. It shall be pure without dust & any foreign matter and shall be uniform in color, density & weight.

M-83b Aluminum foil or percolated sheet:-

I. Aluminum alloy used in the manufacture of extruded & sheet or section shall conform to I.S. designation HEA-WP of I.S. 733- 1975 and also to I.S. designation WVG-WP of I.S. 1285- 1975. & it shall be specified in the item specification. The fabrication shall be done as directed.
II. Aluminum shall be conform to I.S.733-1825, & relevant I.S. standard & specification.
III. Density, Grade & thickness shall be used as per specified in item specification.

M-83c Wood wool board :-

I. Acoustical Insulation shall be conforming to I.S. 8225-1987, and equivalent to ISO: 354 & ASTM. 423-90 A.
II. Thermal insulation shall be conform to B.S.:874 – 1965.
III. Board shall be fire resistant conform to B.S. 476- part-5 Class-P, part-6 I-4.11, Part-7 Class-1, & size, thickness and other special requirement shall be as per specified in item specification.

M-83d Acoustical Board & Gypsum board

Humidity resistant	99 % RH.
Material fire performance	Class- 0/ Class-1 (B.S. 476)
Sound Absorption (NRC.)	0.50
Frequency Hz	125 – 4000
Sound insulation	40dB.
CAC.	90%
Light reflection.	>85%
Thermal resistant.	R=0.28 m2 k/W
Weight / Piece (600mm X 600mm. X 15mm. thick board without Grid.)	2.35 Kg.

Surface finish	Crisp subtly textured matt appearance with visible perforation finished with vinyl emulsion paint
Material	Hydro synthesized Bio soluble long fiber with purified starch as binder.
Bending strength	≥ 250N (JIS A 6301)
Sagging resistant	≤ 5/1000.

Testing Method

Fire Propagation Test	Class – 0	B.S. 476 PART- 6
Flame spread	Class 1 (0-25)	ASTM – E84
	Class-A	U.S. Federal Spec. SS.-S-118-b
	20	Underwriters Laboratories Inc.
	Class-1	BS. 476 Part-7
Thermal conductivity	0.045 Kcal/mh^{0}C	JIS A 1412
Light reflectance	LR-1 (Over 80%)	ASTM. C 523
NRC	0.55-0.70	ASTM. C 423
CAC	36	ASTM. E 413

I. Size, thickness and other special requirement shall be specified in the item specification. The fabrication shall be done as directed.

Signature of Contractor

IS Code No.	Subject
GENERAL: Work shall be carried out to Indian Standards and Code of Practices. In absence International Standards shall be followed. These shall be latest issue. List given hereunder is not to be considered as conclusive and is for reference and guidance only. Any discrepancies /conflict noticed shall be directed to the PMC / the Client for his direction/approval. However, as a general rule more stringent specification shall take precedence.	
IS 4082	Stacking & storage of construction materials and components at site - Recommendations
IS 1800	Method of measurement of building and civil engineering work. (All Parts)
IS 1141	Seasoning of Timber - Code of practice
EARTH WORK	
IS 3674	Safety code for excavation work
IS 1498	Classification and identification of soils for general engineering purposes.
IS 1800 (Pt-1)	Method of measurement of earth work
IS 1800 (Pt-27)	Method of measurement of earth work (by Mechanical Appliances)
IS 4081	Safety code for Blasting and related drilling operation
IS 4988 (Part-IV)	Excavators
IS 6313 (Pt-II)	Anti-Termite measures in buildings (pre-constructional)
IS 6313 (Pt-III)	Anti-Termite measures in buildings for existing buildings
IS 6940	Methods of test for pesticides and their formulations
IS 8944	Chlorpyrifos emulsifiable concentrates
IS 8963	Chlorpyrifos - Technical specifications
IS 12138	Earth moving equipments
MORTARS	
IS 269	Specification for 33 grade ordinary Portland cement
IS 455	Specification for Portland slag cement
IS 650	Specification for standard sand for testing of cement
IS 1269	Specification for 53 grade ordinary Portland cement
IS 1542	Specification for sand for plaster
IS 2116	Specification for sand for masonry mortar
IS 2250	Code of practice for preparation and use of masonry Mortar
IS 3025	Method of sampling and test for water
IS 3406	Specification for masonry cement
IS 3812 (Part-I)	Specification for flyash for use as pozzolana in cement mortar and concrete
IS 3812 (Part-II)	Specification for flyash for use as admixture in cement mortar and concrete
IS 8041	Rapid hardening Portland cement
IS 8042	Specification for white cement
IS 1298	Methods of test for determination of free lime in portland cement
IS 6452	High alumina cement for structural use
IS 1489	Portland Pazzolana Cement
CONCRETE WORKS	

IS Code No.	Subject
IS 383	Specification for coarse and fine aggregate from natural source for concrete
IS 303	Coarse and fine aggregates from natural sources for concrete
IS 1830	Methods for sampling of aggregates for concrete
IS 2386	Method of test for aggregates for concrete
	(a) Part-I: Particle size and shape
	(b) Part-II: Estimation of deleterious materials and organic impurities
	(c) Part-III: Specific gravity, density, voids absorption and bulking
	(d) Part-IV: Mechanical properties
	(e) Part-V: Soundness
IS 2505	General requirements for concrete vibrators - immersion type
IS 2506	General requirements for concrete vibrators – screed board concrete vibrators
IS 2645	Specification for integral water proofing compounds for cement mortar and concrete
IS 761 (Part-I)	Code of practice for extreme weather concreting (Part- I) recommended practice for hot weather concreting
IS 7861 (Part-II)	Code of practice for extreme weather concreting (Part-II) recommended
IS 9103	Specification for concrete admixtures
IS 460	Test sieves
IS 1607	Methods for dry sieving
IS 1834	Hot applied sealing compounds for jointing concrete
IS 12269	Ordinary Portland Cement, 53 grade
REINFORCED CEMENT CONCRETE WORK	
IS 1904	Structural safety of buildings, shallow foundation
IS 1893	Criteria for earthquake resistant design of structures
IS 432 (Part-I)	Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement part-I mild steel and medium tensile steel bars
IS 432 (part-II)	Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement part-II hard drawn steel wire
IS 456	Code of practice for plain and reinforced concrete
IS 516	Method of test for strength of concrete
IS 1199	Method of sampling and analysis of concrete
IS 1800 (Part-II)	Method of measurement of building and civil engineering work - concrete work
IS 1800 (Part-V)	Method of measurement of building and civil engineering work - concrete work (Part 5 - Form work)
IS 1566	Specification for hard drawn steel wire fabric for concrete requirement
IS 1599	Method of bend test
IS 1343	Code of practice for Prestressed Concrete
IS 1786	Specification for high strength deformed steel and wires for concrete reinforcement

IS Code No.	Subject
IS 1791	Specification for batch type concrete mixes
IS 2502	Code of practice for bending and fixing of bars for concrete reinforcement
IS 2751	Recommended practice for welding of mild steel plain and deformed bars for reinforced construction
IS 4925	Batch plants specification for concrete batching and mixing plant
IS 4926	Ready - Mixed Concrete
IS 6523	Specification for precast reinforced concrete door, window frames
IS 10262	Recommended guidelines for concrete mix design
IS 13311 (Part-I)	Indian standard for non-destructive testing of concrete. Method of test for ultrasonic pulse velocity
IS 13311 (Part-II)	Indian standard for non-destructive testing of concrete. Method of testing by rebound hammer.
IS 3370	Concrete structures for storage of liquids
IS 1568	Wire gauge for general purposes
IS 1139	Hot rolled mild steel and medium tensile steel deformed bars for concrete reinforcements
IS 2502	Code of practice for bending and fixing of bars for concrete reinforcement
IS 2751	Code of practice for welding of mild steel bars used for reinforced concrete work
IS 12269	Ordinary Portland Cement, 53 grade
STEEL WORK	
IS 226	Structural steel
IS 2062	Steel for general structural purpose
IS 800	Code of practice for use of structural steel in general in steel construction
IS 806	Code of practice for use of steel Tubes in general building construction
IS 816	Code of practice for use of metal arc welding for general construction in mild steel
IS 818	Code of practice for safety and healthy requirements in electric and gas welding and cutting operations
IS 822	Code of procedure for inspection of welds
IS 1038	Steel doors, windows and ventilators
IS 1081	Code of practice for fixing and glazing of metal (Steel and aluminium) doors, windows and ventilators
IS 1161	Steel tubes for structural purposes
IS 1800 (Pt. VIII)	Method of measurements of steel work and iron works
IS 1367	Technical supply conditions for threaded steel fasteners
IS 1821	Dimensions for clearances holes for bolts and screws
IS 2074	Ready mixed paint, air drying redoxide zinc chrome Priming
IS 4736	Hot - dip zinc coating on mild steel tubes
IS 4923	Hollow steel sections for structural use – specification
IS 6188	Metal rolling shutters and rolling grills
IS 7452	Specification for hot rolled steel sections for doors, windows and ventilators

IS Code No.	Subject
BRICK WORK	
IS 712	Specification for building limes
IS 1077	Common burnt clay building bricks
IS 1800 (Part 3)	Method of measurements of brick works
IS 2212	Code of practice for brick work (1st Revision)
IS 3495	Method of test for burnt clay building bricks
IS 5454	Methods of sampling of clay building bricks
IS 13757	Specification of burnt clay fly ash bricks
IS 2691	Burnt clay facing bricks
MARBLE WORK	
IS 1122	Method of test for determination of true specific gravity of natural building stones
IS 1118	Method of test for determination of water absorption, apparent specific gravity and porosity of natural building stones
IS 1130	Marble (blocks, slabs and tiles)
IS 4101 (Part-I)	Code of practice for external facing and veneers: Stone facing
IS 14223 (Part-I)	Polished Building Stones (Part-I) Granite
WOOD WORK & P.V.C. WORK	
IS 204 (Part-I)	Specification for tower bolts (ferrous bolt)
IS 208	Specification for door handles
IS 287	Recommendations for maximum permissible moisture contents of timber used for different purpose
IS 303	Specification for plywood for general purposes
IS 401	Code of practice for preservation of timber
IS 453	Specification for double acting spring hinge
IS 710	Specifications for Marine Plywood
IS 1003 (Part-I)	Specification for timber paneled and glazed shutter Part-I (Door shutters)
IS 1003 (Part-II)	Specification for timber paneled and glazed shutter Part-II (Window and ventilator shutters)
IS 1800 Part-XIV	Method of measurement of building and civil engg. Work glazing
IS 1800 Part-XII	Wood work and joinery
IS 1328	Specification for veneered decorative plywood
IS 1341	Specification for steel butt hinges
IS 1659	Specification for block boards
IS 1823	Specification for floor door stopper
IS 1868	Specification for anodic coating on aluminium and its alloy
IS 2046	-do- Decorative thermosetting synthetic resin bonded laminated sheet
IS 2095	Specification for gypsum plaster board
IS 2202 (Pt I)	Specification for wooden flush door shutter, solid core type (plywood face panels)
IS 2209	Specification for mortice lock (Vertical Type)
IS 2547	Specification for gypsum plaster
IS 3097	Specification for veneered particle board
IS 3564	Specification for door closer (hydraulically regulated)
IS 3847	Specification for mortice night latch

IS Code No.	Subject
IS 5930	Specification for mortice latch
IS 7196	Specification for hold fast
IS 8756	Specification for mortice ball catch for use in wooden Almirah
IS 9308 (Part-II)	Specification for mechanically extracted coir fibres (Mattress coir fibres)
IS 12817	Specification for stainless steel butt hinges
IS 12823	Specification for wood products - Prelaminated particle Boards
IS 14900	Specifications for transparent float glass
IS 4021	Timber door, windows and ventilator frames.
IS 2191	Wooden flush door shutters (cellular and hollow core type)
FLOORING	
IS 1800 (Part-XI)	Method of measurement of Building and Civil Engineering work (Part 11) paving, floor finishes, dado and skirting
IS 1237-Edition 2.3	Specification for cement concrete flooring tiles
IS 1443	Code of practice for laying and finishing of cement concrete flooring tiles
IS 2114	Code of practice for laying in-situ terrazzo floor finish
IS 3622	Specification for sand stone (Slab & Tiles)
IS 4457	Acid and / or alkali Resistant tiles
IS 5318	Code of practice for laying of hard wood parquet and wood block floors
IS 5766	Code of practice for laying of burnt clay brick floor
IS 13630 (Part-1 to 15)	Methods of Testing for ceramic tiles
IS 13712	Specification for ceramic tiles, definition, classification characteristic and marking
IS 15622	Specification for pressed ceramic tile.
ROOFING	
IS 277	Galvanised steel sheets (Plain and corrugated)
IS 651	Glazed stoneware pipes and fittings
IS 1800 (Pt IX)	Method of measurements of building and civil engineering work : Part-9 Roof covering (including cladding)
IS 1800 (Pt X)	Method of measurements of building and civil engineering work : Part-10 ceiling and lining
IS 2095 (Pt-1)	Gypsum plaster boards (Pt. 1) plain Gypsum plaster boards
IS 2935	Specification for flat transparent sheet glass
IS 459	Corrugated and semi corrugated asbestos cement sheet
FINISHING WORKS	
IS 1542	Sand for plaster
IS 1661	Code of practice for cement and cement-lime plaster finishes on walls and Ceilings
IS 1625	Code of practice for preparation and use of lime mortar in buildings
IS 2250	Code of practice for preparation and use of masonry mortars
IS 712	Building limes
IS 1635	Code of practice for field slacking of lime and preparation of putty.
IS 427	Distemper, dry color as required

IS Code No.	Subject
IS 428	Distemper, oil emulsion, color as required
IS 6278	Code of practice for white washing and color washing
IS 106	Ready mixed paint, brushing, priming for enamels for use on wood.
IS 102	Ready mixed paint, brushing, red lead, non- setting, priming
IS 123	Ready mixed paint, brushing, finishing, semi-gloss, for general purposes
IS 1477	Code of practice for painting of ferrous metals in buildings
IS 2074	Ready mixed paint, red oxide-zinc chrome priming
IS 2339	Aluminium paint for general purposes in dual container
IS 2932	Enamel, synthetic, exterior, type 1
	(a) under coating,
	(b) finishing, color as required
IS 137	Specification for ready mixed paint, brushing, matt or eggshell flat finishing interior to Indian Standard color as required
IS 1131	Specification for enamel, interior
	(a) under coating
	(b) finishing.
IS 129	Specification for ready mixed paint, brushing, grey filler for enamel for use over primers
IS 533	Specification for gum spirit of turpentine (oil of turpentine)
IS 101	Methods of tests for ready, mixed paint, & enamels
IS 118	Specification for ready mixed paint, brushing finishing semi glossy for (Part I) general purposes
IS 2933	Enamel, Exterior
	(a) Under Coating
	(b) Finishing
IS 5410	Cement Paint
IS 5411	Plastic emulsion, Paint Part- I for interior use
IS 419	Specifications for putty for use in window frames
ROAD WORK	
IS 164	Ready mixed paint for road marking
IS 278	Specification for galvanized steel barbed wire for fencing
IS 1838 (Pt.1)	Specification for performed filters for expansion joint in concrete pavements and structures (non-extruding and resilient type / bitumen impregnated fibre)
IS 73	Paving bitumen with bitumen felts
IS 73-1992	Specification for paving bitumen
IS 1803	Method of testing tar and bituminous material Determination of penetration
WATER SUPPLY, SANITORY INSTALLATIONS & DRAINAGE	
IS 771 (Pt.1)	Specification for glazed fire clay sanitary appliances : part 1: General requirements
IS 1703	Water fittings - copper alloy float valves (horizontal plunger type) - Specification
IS 1729	Cast iron / Ductile iron Drainage Pipes and pipe fittings for Over ground non-pressure pipe line Socket and Spigot Series
IS 1795	Specification for pillar taps for water supply purposes

IS Code No.	Subject
IS 2326	Specification for Automatic Flushing Cisterns for Urinals (Other than plastic cisterns)
IS 2548 (Part-1)	Plastic seats and covers for water closets Part 1 : Thermo set seats and covers – Specifications
IS 2548 (Part-2)	Plastic seats and covers for water closets Part 2 : Thermoplastic seats and covers specification
S 2556	Vitreous sanitary appliances (vitreous chine) - Specifications
IS 2556 (Part-1)	Part-1: General requirements
IS 2556 (Part-2)	Paart-2 : Specific requirements of wash-down water closets
IS 2556 (Part-4)	Part-4 : Specific requirements of wash basins
IS 2556 (Part-6)	Part-6 : Specific requirements of Urinals & Partitions plates
IS 2556 (Part-7)	Part-7 : Specific requirements of accessories for sanitary appliances
IS 2963	Specification for copper alloy waste fittings for wash basins and sinks
IS 3076	Specification for low density polyethylene pipes for potable water supplies
IS 4827	Specification for electroplated coating of nickel and chromium on copper and copper alloys
IS 4984	Specification for high density polyethylene pipes for potable water supplies
IS 4985	Unplasticised PVC pipes for potable water supply - Specifications
IS 7231	Plastic flushing cisterns for water closets and urinals - Specifications
IS 13983	Stainless steel sinks for domestic purposes – Specifications
IS 774	Specification for flushing cistern for water closets and urinals
IS 775	Specification for cast iron brackets and supports for wash basins and sink.
IS 778	Specification for cast copper alloy gate and check valves for water works.
IS 651	Specification for salt glazed stoneware pipes and fittings.
IS 3597	Method of test for concrete pipes
IS 1239	Mild steel tubes and tubulars
IS 1711	Self closing taps
IS 1726	Cast iron manhole covers and frames intended for use in drainage works
IS 1742	Code of practice for building drainage
IS 2065	Code of practice for water supply in buildings
IS 1870	Code of practice for design and construction of septic tank
IS 2693	Non-ferrous waste fittings for wash basins and sink
IS 4127	Code of practice for laying of glazed stoneware pipes
IS 4346	Washers for water taps for cold water services
IS 778	Gun metal gate, globe and check valves for water services
IS 7634	Laying and jointing for polythene pipes and PVC pipes (Part I to III)
IS 8008 Part I	Specification for injection Moulded HDPE fittings for potable to IV) water supplies
IS 3844	Code of practice for installation of internal fire hydrants in multi storey buildings

IS Code No.	Subject
IS 780	Specification for sluice valves for water works purposes (50 to 300 mm size)
IS 781	Specification for cast copper alloy screw down bib taps and stop valves for water services
IS 782	Specification for caulking lead
IS 909	Underground fire hydrant, sluice valve type - Specification
IS 2692	Ferrules for water services - Specification
IS 15450	PE-AL-PE Pipes for hot and cold water supplies – Specifications
IS 15778	Chlorinated Polyvinyl Chloride (CPVC) pipes for potable hot and cold water distribution supplies - Specifications
IS 1230	Cast iron rain water pipes and fittings
IS 1626	Asbestos cement building pipes, gutters and fittings (Spigot and socket type)
IS 2527	Code of practice for fixing rainwater gutters and downpipes for roof drainage
IS 458	Pre-cast concrete pipes (with and without reinforcement)
IS 783	Code of practice for laying concrete pipes
IS 1728	Specification for Cast Iron Manhole Covers and Frames
IS 4127	Code of practice for Laying of Glazed Stone Ware Pipes
IS 12592	Pre-cast Concrete Manhole Covers and Frames-Specifications
IS 5382	Specification for rubber sealing rings for gas mains, water mains and sewers
IS 13592	Unplasticised polyvinyl chloride (UPVC) pipes for soil and Waste discharge system for inside and outside building
ALUMINIUM WORK	
IS 733	Wrought Aluminium Alloys, Bars, Rods and Sections (For General Engineering Purposes) - Specification
IS 737	Wrought Aluminium and aluminium alloy sheet
IS 1285	Wrought Aluminium and Aluminum Alloy, Extruded Round Tube and Hollow sections (for General Engineering Purposes) – Specification
IS 1868	Anodic coating on Aluminium and its alloy – Specification
IS 1948	Specification for Aluminium Doors, Windows and Ventilators
IS 5523	Method of testing anodic coating on aluminum and its alloys
IS 6012	Measurement of coating thickness by Eddy Current Method
IS 6315	Floor springs (Hydraulic regulated) for heavy doors -Specifications
IS 6477	Dimensions of extruded hollow section and tolerances
IS 14900	Transparent Float Glass – Specifications
WATER PROOFING TREATMENT	
IS 3370 (Part 1)	Code of practice for concrete structures for the storage of liquid : Part-1 General Requirements

DETAILED TECHNICAL SPECIFICATIONS

Item No. 1,2,3:
Excavation of Foundation in Soft Murrum, Hard Murrum, Soil or Sand from 0.00 mtr. To 1.50 mtr., 1.50 mtr. To 3.00 mtr Depth including up to all lifting and laying in area as instructed

1.0 General:

1.1 Any soil which generally yields to the application of the pickaxes and shovels, phawaras rakes or any such ordinary excavation implement or organic soil, gravel, slit, sand turf loan, clay, peat etc. fall under this category.

2.0 Cleaning the site:

2.1 The site on which the structure is to be built shall be cleared, and all obstructions, loose stone, materials and rubbish of all kind, bush, wood and trees shall be removed as directed. The materials so obtain shall be property of the government and shall be conveyed and stacked as directed within 50 m lead. The roots of the tree coming in the sides shall be cut and coated with a asphalt.

2.2 The rate of side clearance is deemed to be included in the rate of earth work for which no extra will be paid.

3.0 Setting out:

After clearing the site, the center lines will be given by the engineer-in-charge. The contractor shall assume full responsibility for alignment, elevation and dimension and of each and all parts of the work. Contractor shall supply labors, materials, etc required for setting out the reference marks and bench marks and shall maintain them as long as required and directed.

4.0 Excavation:

The excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawings or as directed. The contractor shall do the necessary shoring and strutting or providing necessary slopes to a safe angle, at his own cost. The bottom of the excavated area shall be leveled both longitudinally and transversely as directed by removing and watering as required. No earth filling will be allowed for bringing it to level, if by mistake or any other reason excavation is made deeper or wider than that shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of the contractor. The excavation up to 1.5 mt depth shall be measured under this item.

5.0 Disposal of the excavated stuff:

The excavated stuff of the selected type shall be used in filling the trenches and plinth or leveling the ground in layers including ramming and watering etc.
The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed within RMC limit and all lift.

Mode of Measurement and Payment:

The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the engineer-in-charge. No payment shall be made for surplus excavation made in excess of above requirement or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety.

The rate shall be for a unit of one cubic Meter.

Item No. 5:

Removal of Excavated Stuff and Laying with in RMC Limit as directed by Engineer in charge

Disposal of the excavated stuff:

The excavated stuff of the selected type shall be used in filling the trenches and plinth or leveling the ground in layers including ramming and watering etc.

The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed within RMC limit and all lift.

After refilling, surplus earth shall have to carted by the contractor within specified limit including loading transporting unloading spreading without any extra cost.

The surplus stuff shall be disposed off at the following sites as directed within the prescribed limits of Notification as directed by the engineering in charge.

It will be the sole responsible of agency to repair any extra paver / road damages at it's own cost. Excavated material / Bitumen surface shall be disposed at following site as Notified by RMC and as directed by the engineering in charge.

1. Beside Kotharia Police Station near Stone Quarry
2. All Quarry areas of Raiya Smart City
3. TP Scheme No.10, FP-87, Dhebar Road (South), Atika Area, Nr. PGVCL Office
4. TP Scheme No.23, FP-23, Nr. IOC Godown, Morbi Road
5. TP reservation plot at Samrat industrial Area, Bh. ST Workshop
6. TP Scheme No.9, FP-5, Nr. Raiyadhar Garbage Station
7. TP Scheme No.20, FP-35, Bh. Pradhuman Green
8. TP Scheme No.28 (Mavdi), FP-46/A, Nr. GETCO Circle
9. TP Scheme No.12, FP-38/A and 39/B, Nr. Lijjat Papad, Kothariya Nationla Highway

If the contractor fails to dispose the excavated stuff as specified, penalty will be imposed by Rajkot Municipal Corporation as per the Notification for C&D waste.

Mode of Measurement and Payment:

The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the engineer-in-charge. No payment shall be made for surplus excavation made in excess of above requirement or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety.

The rate shall be for a unit of one cubic Meter.

Item No. 4:

Excavation of Foundation in Soft Rock, Hard rock with Breaker /Blasting /Gann from 0.0 mtr. to 1.50 mtr Depth including up to all lifting and laying in area as instructed
And

Excavation of Foundation in Soft Rock,Hard rock with Breaker / Blasting / Gann from 1.50 mtr. to 3.00 mtr Depth including up to all lifting and laying in area as instructed

1.0. Workmanship

1.1. The relevant specification of item No. 4.0.0.(A) shall be followed except that the excavation for foundation work shall be carried out in soft / hard rock.

1.2. Excavation shall be done by blasting to the dimensions shown in the drawings or as directed. The blasting shall be carried out only with written permission of the Engineer-in-charge. All the laws, regulations etc,- pertaining to the precautions, acquisition, transport, landing and use of explosive shall be rigidly followed. The Magazine for the storage for the explosive shall be built to the design and specifications of explosive authority and located at the approved site No unauthorized persons shall be admitted into the magazine and when not in use it shall be kept securely locked No matches or inflammable materials shall be allowed in Magazine. The Magazine shall have an-effective lightning conductor. The rules of explosive 1940 revised from time 10 time shall be followed strictly for obtaining starting, handling, undertaking blasting work.

1.3. The contractor shall be responsible for damage to property, workmen public due to any accident due to use of explosives and operations

1.4. Precautions

1.4.1. The blasting operation shall remain in charge of competent and experienced supervisor and workmen who are thoroughly acquainted with the detail of handling explosive and blasting operations. The blasting shall be carried our during fixed hours of the day, preferably during the mid-day lunch hours or at the close of the work as ordered in writing by the Engineer-m-charge. The hours of blasting shall be notified in advance to the people in the vicinity. All the charges shall be prepared by the man in charge only.

1.4.2. Red danger flags shall be displayed prominently in all direction during the blasting operations.

1.4.3. People except those who actually light the fuse shall be prohibited from entering into this area. The flags shall be stationed at 200 m. from the firing-site in all directions and all persons including workmen shall be excluded from the flagged area at least 1.0 minutes before the firing warning whistle being sounded for this purpose

1.4.4. During excavation in rock by blasting, the lowest 15 cm. of stratus shall be blasted with light charge so as not to shatter or weaken the underlying rock on which the foundation will be actually laid If excavation in rock in done to large widths and length than those shown on the drawings or as directed, no payment shall be made for such over break. If excavation is done to depths greater than shown on the drawings or directed, excess depth shall be made up with foundation grade concrete as directed at the contractor's cost.

1.4.5. The charged hole shall be drilled to the required depth and in suitable places when blasting is done with powder, the fuse cut to the required length shall be inserted in the holes and the powder dropped in. The powder shall be gently tamped with copper rod with rounded ends. The explosive powder shall then be covered with trapping materials which shall be tamped lightly out firmly. When blasting is done with dynamite and other high explosive, dynamite cartridges shall be prepared by inserting the square cut ends of fuse into the detonator, and finished with dippers at the open ends The detonator should be gently pushed into the detonator and finished with dippers at the opened ends. The detonator should be gently pushed explosive. Bore holes shall be of such size that the cartridges can be easily passed down. The holes shall be cleared of all debris and explosive inserted The space for about 20 cams, above the charge shall then be gently filled with dry clay pressed home and rest of tamping is with firmed any convenient materials gently packed with a wooden cover.

1.4.6. At a time not more than 10 such charge shall be prepared and fired. The man in charge shall blow a whistle in a recognised manner for cautioning the people. All the people shall then be required to move to number of explosions. He shall satisfy himself

that all the charges have been exploded before allowing the workmen to go to the work site.

1.4.7. The contractor shall be fully responsible to strictly follow the prevailing rules and procedures regarding blasting procedures

1.5. Misfire

1.5.1. In case of a misfire the following procedure shall be observed:

1.5.2. Sufficient time shall be allowed to account for the delayed blast. The man in charge shall inspect all the charges and determine the missed charge.

1.5.3. If it is the blasting powder charge it shall be completely flooded with water. A new hole shall be drilled at, about 45 cm. from the old and fired. This should blast the old charge Should^ it not blast the old charge, the procedure shall be repeated till the old charge is blasted.

1.5.4. In case of charge of gelatins, dynamite etc, the man in charge shall gently remove the tamping and the primer with detonator and primer shall then be used to blast the charge. Alternatively, the hole may be cleared of one foot of tamping and the direction then ascertained by placing a stick in the hole Another hole may then be drilled 15 cm away and parallel to it. The man in charge shall report to the office all cased of misfire and cause of the same and what steps ware taken in connection therewith.

1.5.6. If a misfire has been found to he due to defective or dynamite, the whole quantity in the box from which defective article was taken must be sent to authority as directed for inspection to ascertain whether all the remaining materials in the box are also defective or not.

1.6. Accidents:

1.6.1. The contractor shall be solely responsible for any accident during the entire procedure of handling explosive and blasting and shall pay necessary compensation to persons affected or damage to lands or property etc, due to the blasting, without extra claims on the department.

1.7. Account:

1.7.1. A careful and day to day account of explosives shall be maintained by the contractor in an approved manner and shall be open to inspection of the Engineer-in charge Surprise visits may also be paid by the Engineer-in-charge to the storage and in case of any unaccountable shortage or unsatisfactory accounting, the contractor shall be liable to be penalised by forfeiture of part or whole of his Security Deposit or by cancellation of tender in which case he shall not be entitled for any compensation .-

1.8. Disposal of Excavated Materials:

1.8.1 No materials excavated from foundation trenches of whatever kind they may be, are to be placed even temporarily nearer than 1.5 m. or distance prescribed by the Engineer from the outer edge of excavation. All materials excavated shall remain the property of Government. Rate for excavation includes sorting out of useful materials and stacking them separately as directed within the specific lead. 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 upon the area required for constructional purpose. The site shall be left clean of all debris on completion.

1.8.2. Disposal of excavated materials is subject to the following: Unsuitable materials o b t a i n e d from clearing site and excavation shall be disposed off within a lead of 50 meters as directed. Useful materials obtained from clearing site and excavation shall be stacked within a lead of 50 M beyond the building areas is directed. Materials suitable

for back-filling shall be stacked at convenient places within a lead of 50 M. from the structure for reuse. Useful stones from rock excavation shall be stacked neatly within a lead of 50 M. and will be allowed to be used by the contractor on payment at rates laid down n the contract or if not so laid down, at scheduled rates of the Division or at a mutually agreed rates if there are no such rates in the schedule of rates.

1.8.3. If surplus materials are required to be conveyed beyond 50 M, conveyance will be paid for under a separate item

2.0. Mode of measurements & Payment

2.1. The work shall be measured for the work limited to the dimensions shown on drawings or directed Excavation to dimension in excess of the above will not be measured or paid for and if so, ordered by the Engineer the contractor shall have to fill up the excess depth with cement concrete specified for foundation without extra payment.

2.2. Driving of sounding bars, drill holes to explore the nature of substratum up to a total length of meter distributed in 2 or 3 places in each foundation, if necessary, will be considered incidental work and will not be paid for separately.

2.3. Removal of slips and blows in the foundation trenches will not be measured or paid for.

2.4. if it is necessary in the opinion of the Engineer-in-charge to carry foundation below the levels shown on the plans, the excavations for the **3.0 M** of addition depth will be included in the quantity for the particular classification and will be paid for as extra at rate to be decided under the general conditions of contract unless, the contractor is willing to accept payment as tendered rates.

2.5. The rate shad be for a unit of one cubic meter.

Item No. 6:
Foundation filling with CC work in proportion of M-150 using 1.5 cm to 2.0 cm aggregate including Raming, Curing etc.

1.0. Materials

1.1 Water shall conform to M-1. Cement shall conform shall conform to M-3. Sand shall conform to M-6. Stones aggregate 20 mm. nominal size shall conform to M- 12.

2.0 Workmanship

2.1 General

2.1.1 Before starting concrete the bed of foundation trenches shall be cleared of all loose materials, leveled, watered and rammed as directed.

2.2 Proportion of Mix

2.2.1 The proportion of cement, sand and coarse aggregate shall be one part of cement, 2 parts of sand and 4 parts of stone aggregate; and shall be measured by volume.

2.3 Mixing

2.3.1 The concrete shall he mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by the Engineer-in-charge. When hand mixing is permitted by the Engineer-in- charge in case of break-down of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However, in such cases 10% more cement than otherwise required shall have to be used without any extra cost. The mixing in mechanical mixer shall be done for a period 1½ to 2 minutes. The quantity of water shall be just sufficient to produce a. dense concrete of required workability for the purpose.

2.4 Transporting & placing the concrete.

2.4.1 The concrete shall, be handed from the place of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

2.4.1 The concrete shall be laid in layers of 15 cms to 20 cms.

2.5 Compacting:

2.5.1 The concrete shall be rammed with heavy iron rammers and rapidly to get the required compaction and to allow all the interstices to be filled with mortar.

2.6 Curing

2.6.1 After the final set, the concrete shall be kept continuously wet if required by ponding for a period of not less than 7 days from the date of placement.

2.7 Mode of measurements and payment:

2.7.1 The concrete shall he measured for its length, breadth, and depth, limiting dimensions to those specified on plan or as directed.

2.7.2 The rate shall be for a unit of one cubic meter.

Item No. 7,8,9,14,15,16,17,18,19,20

Providing and laying cement concrete in (M100,M150,M200,M250,M300) in nominal mix including form work, for coping lintel slab, beam, and walls all curing complete excluding reinforcement for reinforced work in: (A) Foundations, footing base, of columns and mass concrete. (C) Slabs, landings shelves, balconies, lintels, beams, girders and cantilever up to floor any level. (D) Columns, pillars, posts, and struts up to floor any level (E) Stair case up to floor any level (K) Vertical and horizontal fins up to floor any level including form work.

1.0 Materials:

Water shall conform to M-1, cement shall conform to M-3, Sand shall conform to M-6, Grit shall conform to M-8. Graded stone aggregate 10 to 20 mm, nominal size shall conform to M-12.

2.0 General:

2.1 The concrete mix is not required to be designed by preliminary tests. The proportion of concrete mix shall be 1:1$^1/_2$:3 (1 Cement: 1$^1/_2$ coarse sand: 3 graded stone aggregate 20 mm nominal size) and 1:2:4 (1 Cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size)by volume.

Concrete work shall have exposed concrete surface or as specified in the item.

2.2 The designation ordinary M-100, M-150, M-200, M-250 specified as per IS correspond approximately to 1:3:6, 1:2:4, 1:1$^1/_2$:3 and 1:1:2 nominal mix of ordinary concrete by volume respectively.

2.3 The ingredients required for ordinary concrete containing one bag of cement of 50 Kg by weight (0.0342 Cu.M) for different proportions of mix shall be as under:

Grade of concrete	Total quantity of dry aggregate by volume per 50 kgs of cement to be taken as the sum of individual volume of fine and coarse aggregates,	Proportion of fine aggregate to coarse aggregate	Quantity of water per 50 Kgs of cement maximum

	max.		
M-100 (1:3:6) M-150 (1:2:4) M-200 (1:1½:3) M-250 (1:1:2)	300 Liters 220 Liters 160 Liters 100 Liters	Generally, 1.2 for fine aggregateto coarse aggregate by volume but subject to an upper limit of 1:1.1/2 and lower limit 1:3	34 Liters 32 Liters 30 Liters 27 Liters

2.4 The water cement ratio shall not be more than specified in the above table. The cement concrete of the mix specified in the Table shall be increased if the quantity of water in mix has to be increased to overcome the difficulties of placements and compaction so that water cement ratio specified on the table is not exceeded.

2.5 Workability of the concrete shall be controlled by maintaining a water cement ratio that is found to give a concrete mix which is just sufficient wet to be placed and compacted without difficulty with the means available.

2.6 The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than one fourth of minimum thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form.

2.7. For reinforced concrete work, coarse aggregates having a nominal size of 20 mm, are generally considered satisfactory.

2.8 For heavily reinforced concrete members as in the case of ribs main beams, the nominal maximum size of coarse aggregate should usually be restricted to 5 mm, less than the minimum the distance between the main bars, or 5 mm less than the minimum cover to the reinform or whichever is smaller.

2.9 Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be so important, and the nominal maximum size may sometimes be as greater as or greater than the minimum cover.

2.10 Admixture may be used in concrete only with approval of engineer-in-charge based upon the evidence that with the passage of time, neither the compressive strength of concrete is reduced nor are other requisite qualities of concrete and steel impaired by the use of such admixtures.

3.0 Workmanship:

3.1 Proportioning:

Proportioning shall be done by volume, except cement which shall be measured in terms of bags of 50 kg.weight the volume of one such bag being taken as 0.0342 Cum. Boxes of suitable size shall be used for measuring sand aggregate. The size of boxes (internal) shall be 30 x 30 cms, and 38 cms deep while measuring the aggregate and sand the boxes shall be filled without shaking ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand, allowances for bulkage shall be made.

3.2 Mixing:

3.2.1 For all work, concrete shall be mixed in a mechanical mixer which along with other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand and cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about half a minute of dry mixing measured quantity of water required for each batch of concrete mix shall be added gradually and mixing continued for another one and a half minute. Mixing shall be continued till materials are uniformly distributed and uniform color of the entire mass is obtained and each individual particle of the coarse aggregate shows complete coating of mortar containing its proportionate amount of cement. In no case shall the mixing be done for less than 2 minutes after all ingredients have been put into the mixer.

3.2.2When hand mixing is permitted by the engineer-in-charge for small jobs or for certain other reasons, it shall be done on the smooth water tight platform large enough to allow efficient turning over the ingredients of concrete before and after adding water. Mixing platform shall be so arranged that no foreign material gets mixed with concrete nor does the mixing water flow out. Cement in required number of bags shall be placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate and cement shall then be mixed thoroughly by turning over to get a mixture to uniform color. Specified quantity of water shall then be added gradually through a rose can and the mass turned over till a mix of required consistency is obtained. In hand mixing quantity of cement shall be increased by 10 percent above that specified.

3.2.3Mixers which have been out of use for more than 30 minutes shall be thorough cleaned before putting in a new batch. Unless otherwise agreed to by the engineer-in-charge the first batch of concrete form the mixture shall contain only two thirds of normal quantity of coarse aggregate. Mixing plant shall be thoroughly cleaned before changing from one type of cement to another.

3.3 Consistency:

3.3.1The degree of consistency which shall depend upon the nature of the work and the methods of vibration of concrete, shall be determined by regular slump tests in accordance with IS 1199 - Latest edition. The slump of 10 mm to 25 mm shall be adopted when vibrators are used and 80 mm when vibrators are not used.

3.4 Inspection:

3.4.1Contractor shall give the engineer-in-charge due notice before placing any concrete in the forms to permit him to inspect and accept the false work and forms as to their strength, alignment, and general fineness but such inspection shall not relieve the contractor of his responsibility for the safety of men, machinery, materials and for results obtained. Immediately before concreting, all forms shall be thoroughly cleaned.

3.4.2Centering design and its erection shall be got approved from the engineer-in-charge. One carpenter with helper shall invariably kept present throughout the period of concreting. Movement of labor and other persons shall be totally prohibited for reinforcement laid in position. For access to different parts suitable mobile platforms shall be provided so that steel reinforcement in position is not disturbed. For ensuring proper cover, mortar blocks of suitable size shall be cast and tied to the reinforcement. Timber, kapachi or metal pieces shall not be used for this purpose.

3.5. Transporting and Laying:

3.5.1The method of transporting and placing concrete shall be as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place. All form work shall be cleaned and made free from standing water dust, show or ice immediately before placing of concrete. No concrete shall be placed in any part of the structure until the approval of the engineer-in-charge has been obtained.

3.5.2Concreting shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete which has been in position for more than 30 minutes unless a proper contraction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer. Expert where otherwise agreed to by the engineer-in-charge concrete shall be deposited in horizontal layers to a compacted depth of not more than 0.45 meter when internal vibrators are used and not exceeding 0.30 meter in all other cases.

3.5.3Unless otherwise agreed to by the engineer-in-charge, concrete shall not be dropped in to place from a height exceeding 2 meters. When trunking or chutes are used they shall be kept close and used in such a way as to avoid segregation. When concreting has to be resumed on a surface which has hardened it shall be roughened swept clean, thoroughly wetted and covered with a 13 mm thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13 mm layer of mortar shall be freshly mixed and placed immediately before placing of new concrete. Where

concrete has not fully hardened all laitance shall be removed by scrubbing the wet surface with wire of bristle brushes care being taken to avoid dislodgement of any particles of coarse aggregate. The surface shall then be thoroughly wetted all free water removed and then coated with neat cement grout the first layer of concrete to be placed on this surface shall not exceed 150 mm in thickness and shall be well rammed against old work particular attention being given to corners and close spots.

3.5.4 All concrete shall be compacted to produce a dense homogenous mass with the assistance of vibrators unless otherwise permitted by the engineer-in-charge for exceptional cases such as concreting under water where vibrators cannot be used. Sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the event of breakdowns. Concrete shall be judge to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream up to form an even surface mixture. During compaction, it shall be observed that needle vibrators are not applied on reinforcement which is likely to destroy the bond between concrete and reinforcement.

3.6 Curing:

Immediately after compaction, concrete shall be protected from weather including rain running water shocks vibration traffic rapid temperature changes frost and drying out process. It shall be covered with wet sacking hassian or other similar absorbent material approved soon after the initial set and shall be kept continuously wet for a period of not less than 14 days from the date of placement. Masonry work over foundation concrete may be started after 48 hours of its laying but curing of concrete shall be continued for a minimum period of 14 days. After the final set, the concrete shall be kept continuously wet if required by ponding and vertical members with Jute Bags.

3.7 Sampling and testing of concrete:

3.7.1. Samples from fresh concrete shall be taken as per IS 1199 - Latest edition, and cubes shall be made cured and tested at 7 days of 28 days as per requirements in accordance with IS 516 - Latest edition. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested i.e. the sampling should be spread over the entire period of concreting and cover all mixing units. The minimum frequency of sampling of concrete of each grade shall be in accordance with following:

Quantity of concrete in the work	No. of samples	Quantity of concrete in the work.	No.of samples
1-5 cmt	1	16-30 cmt	3
6-15 cmt	2	31-50 cmt	4
51 and above	4 ± one additional for each additional 50 m or part thereof		

NOTE:- At least one sample shall be taken from each shift. Ten test specimens shall be made from each sample five for testing at 7 days and the remaining five at 28 days. The samples of concrete shall be taken on each days of the concreting as per above frequency. The number of specimens may be suitably increased as deemed necessary by the engineer-in-charge when procedure of tests given above reveals a poor quality of concrete and in other special cases. One Sample of Concrete will consist of 6 nos of Cube 3 nos tested 7 days and 3 nos for 28 days.

3.7.2. The average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 Kg/Cm^2 for concrete 1:2:4 and 200 Kg/cm2 for concrete 1:1$^1/_2$:3 at 28 days. 20% of the cubes cast for each day may have value less than the specified strength. Such concrete shall be classified as belonging to the appropriate lower grade. Concrete made in accordance with the proportion given for a particular grade shall not, however, be placed in a higher grade on the ground that the test

strength is higher than the minimum specified.

3.8 Stripping:

3.8.1. The engineer-in-charge shall be informed in advance by the contractor of his intention to strike the form work. While fixing the time for removal of form, due consideration shall be given to local conditions, character of the structure, the weather and other conditions that influence the setting of concrete and of the materials used in the mix. In normal circumstances (generally where temperatures are above 20^0C) and where ordinary concrete is used, forms may be struck after expiry of periods specified below for respective item of work.

Stripping Time:

In normal circumstances and where ordinary cement is used forms may be struck after expiry of following periods:

a) Side of walls, columns and vertical faces of beams - 24 to 48 hours.
b) Beam softish (props. left under) - 7 days
c) Removal of props slabs:
   i) Slabs spanning up to 4.5 m - 10 days
   ii) Spanning over 4.5 m - 14 days
d) Removal of props for beams and arches
   i) Spanning up to 6 m - 14 days
   ii) Spanning over 6 m - 21 days

3.8.2. All form work shall be removed without causing any shock or vibration as would damage the concrete. Before the soffit and struts and struts are removed, the concrete surface shall be gradually exposed, where necessary in order to ascertain that concrete has sufficiently hardened. Centering shall be gradually and uniformly lowered in such a manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal ties are permitted, they or their removable parts shall be extracted without causing any damage to the concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less 25 mm cover to the finished concrete surface. Where it is intended to re-use the form work, it shall be cleaned and made good to the satisfaction of the engineer-in-charge. After removal of work and shuttering, the City Engineer (Special) - [Schools] shall inspect the work and satisfy by random checks that concrete produced is of good quality.

3.8.3. Immediately after the removal of forms, all exposed bolts etc. passing through the cement concrete member and used for shuttering or any other purpose shall be cut inside the cement concrete member to a depth of at least 25 m below the surface of the concrete and the resulting holes be filled by cement mortar. All fins cussed by form joints, all cavities produced by the removal of form ties and all other holes and depressions, honeycomb spots, broken edges or corners and other defects, shall be thoroughly cleaned, saturated with water and carefully pointed and rendered true with mortar of cement and fine aggregate mixed in proportions used in the grade of concrete that is being finished and of as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure through filling in all voids. Surfaces which are pointed shall be kept moist for a period of 24 hours. If pockets / honeycombs in the opinion of the engineer-in-charge are of such an extent or character as to affect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare the concrete defective and require the removal and replacement of the portions of structure affected.

(a) the bars shall be kept in position by the following methods:

(i) In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2 (1-cement: 2-coarse sand) about 4 x 4 cms. Section and of thickness equal to the specified cover shall be place between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement. In case of cantilevered or doubly reinforce beams or slabs, the main reinforcing bars shall be held in position by introducing chain spacers or supports bars at 1.0. to 1.2 metres centers.

(ii) In case of columns and walls, the vertical bars shall be kept in position be means of timber

templates slotes accurately out in them; the templates shall be removed after concreting has been done below it. The bars Ray also suitably tied by means of annealed steel wires to the shuttering to maintain position during concreting.

1.2. All bars, projecting form pillars, Columns beams, slabs etc, to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days, This coat of thin neat cement shall be removed before concreting.

Note:-

***In M-25 Grade by way of Ready-Mix Concrete (RMC) or Weigh Batcher, for which, the Mix design prepared the cement content should be 380 Kg/Cu.M.(minimum).**

***In M-20 Grade by way of Ready-Mix Concrete (RMC) or Weigh Batcher, for which, the Mix design prepared the cement content should be 360 Kg/Cu.M.(minimum).**

4.0. Mode of measurements & payment.

4.1. The consolidated cubical contents of concrete, work as specified in item shall be measured. The concrete laid in excess of sections shown on drawing or as directed shall not be measured. No deduction shall be made forl

(a) Ends of dis-simmilar materials such as joints, beams, posts, girders, rafters, purline trusses, corbels and steps etc. up to 500 sq.cm. in section,

(b) Opening up to 0.1 Sqm.

4.2. The rate includes cost of all materials labour, tools and plant requited for mixing, placing in position, vibrating and compacting, finishing, as directed. curing and all other incidental expenses for producing concrete of specified strength. The rate excludes the cost of form work.

4.3 The rate shall be for a unit of one cubic meter.

Item No.10

Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. for all floor level in Cement Mortar 1:6 (1- Cement : 6 -fine sand)

Materials:

Water shall confirm to M-1.

Cement:

Cement shall confirm to M-3.

Brick:

The bricks shall be hard or machine moulded and made from suitable soils and burnt. They shall be free from cracks and flaws and nodules of free lime. They shall have smooth rectangular faces with sharp corners and shall be of uniform colors.

The bricks shall be moulded with a frog of 100 mm x 40 mm and 10 mm to 20 mm deep on one of its flat sides. The bricks should not be broken when thrown on the ground from a height of 600 mm.

The size of modular bricks shall be 190 mm x 90 mm.

The size of the conventional bricks shall be as under:

(9" x 4.3/8" x 2,3/4") 225 x 110 x 75 mm

Only bricks of one standard size shall be used in one work. The following tolerances shall be permitted in the conventional size adopted in a particular work.

Length ±1/8" (3mm) width : ± 1/16" (1.5mm)

Height: ± 1/16" (1.5 mm)

The crushing strength of the bricks shall not be less than 35 kg/sq.cm. The average water absorption shall not be more than 20 percent by weight. Necessary tests for crushing strength and water absorption etc., shall be carried out as per IS: 3495 (Part I to IV) - latest edition.

Workmanship:

i) Proportion:

The proportion of the cement mortar shall be 1:6 (1-Cement, 6-Fine sand) by volume.

Wetting of bricks:

The bricks required for masonry shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of bubbles, when the bricks are wetted with water is an indication of thorough wetting of bricks.

Laying:

Bricks shall be laid in English bond unless directed otherwise. Half or cut bricks shall not be used except when necessary to complete the bond; closer in such case shall be cut to required size and used near the ends of walls.

A layer of mortar shall be spread on full width for suitable length of the lower coarse. Each brick shall first be properly bedded and set frame by gently tapping with handle of trowel or wooden mallet. It's inside face shall be flushed with mortar before the next brick is laid and pressed against it. On completion of course the vertical joints shall be fully filled from the top with mortar.

The work shall be taken up truly in plumb. All courses shall be laid truly horizontal and all vertical joint shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. the thickness of brick coarse shall be kept uniform.

The brick shall be laid with frog upwards. A set of tools comprising of wooden straight edges, mason's spirit level, square half meter rub, and pins, string and plumb shall be kept on site of work for frequent checking during the progress of work.

Both the faces of walls of thickness greater than 23 cms shall be kept in proper place. All the connected brick work shall be kept not more than one meter over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and not left toothed) at an angle not steeper than 45 degrees.

All fixtures, pipes, outlets of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar.

Joints:

Bricks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not expose 12 mm. The face joints shall be raked out as directed by raking tools daily during the progress of work when the mortar is still green so as to provide key for plaster or pointing to done.

The face of brick shall be cleaned the very day on which the work is laid and all mortar dropping removed.

Curing:

Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.

Proportion of foundation bed:

If the foundation is to be laid directly on the excavated bed, the bed shall be leveled, cleared of all loose materials, cleaned and wetted before string masonry is to be laid on concrete footing, the top of concrete shall be cleaned and moistened. The contractor shall obtain the engineer's approval for the foundation bed before foundation masonry is started. When precast flooring is to be provided flush with the top of plinth, the inside plinth offset shall be kept lower than the outside plinth top by the thickness of the following.

Mode of measurement & Payment:

The measurement of this item shall be taken for the brick masonry fully completed in foundation up to plinth. The limiting dimensions not exceeding those shown on the plains or as directed shall be final. Battered tapered and curved position shall be measured net.

Item No.11

Filling of Plinth with using excavated usefull material partly and remaining murrum to be brought from outside in layer of 0.23 m thick including murrum and sprinkling of water, compaction etc. complete.

1.0. Materials:

1.1. Murrum shall be clean of good binding quality, and of approved quality obtained from approved pots/quarries of disintegrated rocks which contain silicons materials and natural mixture of clay of calcareous origin. The size of murrum shall not be more than 20 mm. in this case if excavation material is good then 1st priority will be this material use in filling and that rate given as per Item no.02. during excavation the usable material stacking as per instruction Engineer-in-Charge at the suitable site near the work site, for use in filling.

If the earth has to be bought from outside of the site, the rate includes the purchase cost of the earth, loading and unloading, its carting from outside to site, octroi, levy royalty or any other form of taxes as per prevailing rules, screening if necessary, spreading in 200mm (6" to 8") layers and watering, ramming and consolidating with 10 ton roller, if it not possible then through electric compactors of adequate capacity. Each layer prior to putting next layers as per the instruction of Engineer. The earth shall be got provided prior to bring on site. The earth shall be free from trees roots, weeds, big stones, and other objectionable materials liable to decay.

2.0. Workmanship:

2.1. The murrum or selected soil shall be filled in foundation and plinth in 20 cms. layers including consolidating, ramming, watering, dressing etc. complete.

3.0. Mode of measurement and payment:

3.1. The relevant specifications of the item shall be followed.

3.2. The rate includes cost of collecting and carting murrum/or selected earth of approved quality with all lead and labour required for filling in trenches and plinth.

3.3. The rate shall be for a unit of one cubic meter.

Item No. 12:

Filling of Plinth in layers of 0.23 m thick including murrum and sprinkling of water, compaction etc. complete.

1.0 Materials :

1.1 Murrum shall be clean of good binding quality, and of approved quality obtained from approved pots/quarries of disintegrated rocks which contain silicons materials and natural mixture of clay of calcarions origin. The size of murrum shall not be more than 20 mm.

2.0 Workmanship:

2.1 The murrum or selected soil shall be filled in foundation and plinth in 23 cms. layers including consolidating, ramming, watering, dressing etc. complete.

3.0 Mode of measurement and payment:

3.1 The relevant specifications of the item shall be followed.

3.2 The rate includes cost of collecting and carting murrum/or selected earth of approved quality with all lead and labour required for filling in trenches and plinth.

3.3 The rate shall be for a unit of one cubic metre.

Item No.13

Carrying out plinth treatment to post construction /existing structure by spraying chemical solution for termite control treatment including labour and material consistent with I.S.I specification.

Using Chlordene and Chiorpurfiles 20 EC. As Per 6131_paret-II Consentration Weight one percent is recommended i.e one litre 20 EC chemical emulsion with 19 liter give 1 % concrentration inclusive of one litre chemical emulsion appication at the rate of 5 Litre chemical / Sqm of surface is recommended as per I.S

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Materials :

The chemicals used for the treatment shall be only one of the following with concentration shown against each in aqueous emulsion

Chemicals Concentration

1 Aldrin 0.50%(by weight)
2 Heptachlor 0.50%(" ")
3 Chordane 1.00%(" ")

2.0 Workmanship: The chemical barrier shall be complete and continuous under whole of the structure to be protected.

2.2 The bottom and the sides of foundations upto a highest of 30 cms from the bottom of excavation made form masonry foundation and for basement column pits shall be treated with the chemical emulsion at the rate 5 liter/sq meter of the surface area.

2.3 The chemical treatment shall be Carrie out when the surface is quite dry chemical treatment shall not be carried out when it is raining or when the soil is wet with rain or sub soil water.

2.4 Once formed treated soil barriers shall be not disturbed if by chance treated soil barrier system.

2.5 The treatment against termite infection shall remain full effective for aneroid not less than 10 years from date of issue of the final certificate of completion of work. If at any time during this period any defects in treatment are revealed or any evidence of infection in any part of the building or structure is noticed the contractor shall be rectify the concerned defects within 15 days on receipt of notice from Engineer-in-charge .On contractor 's failure to do so the Engineer-in-charge may get the same rectified through any other agency at contractor's risk and cost, and decision Engineer-in-Charge as to the cost payable by the contractor for the same shall be final and binding to the contractor

2.6 A guarantee bond on appropriately stamped paper shall be given by the contractor to the department in the manner and form prescribed below:

FORM OF GUARANTEE BOND

"I/We.....(Contractor)hereby guarantee that work will remain unaffected and will not be in any way damaged by termite or any other germs of similar type for period of 10 years after completion of the work of anti-termite as per the terms and condition of the contractor and contractor hereby indemnifies and agrees to save harmless the Government of Gujarat from any loss and or damage that might be caused account of termite and or other similar type of germs and hereby Guarantee to make good any loss or damages suffered by the Government of Gujarat and further guarantee to redo the effective work without claiming any extra cost"

2.7 This guarantee shall remain force for the period of 10 year from the completion of the work under the contract and it shall remain binding to the contractor for period of 10years.

2.8 The deposit at the rate of 50% of the cost of this item from the running and final bills shall be recovered and retained for the fist one year after the completion of the completion of the guarantee period.

3.0 Mode of Measurement:

3.1 The length and breadth shall be measured correct to cm as per the dimensions of sanctioned plans NO deduction shall be made not extra paid for and opening for pipe etc. up to 0.1 sq mt The rate shall include the cost of all labour materials required for the operation involved for satisfactory completion of this item The saids of the trenches 30cms each side and bottom shall be measured under this item.

3.2 The rate shall be for a unit of one sq. meter.

Item No.21:

Supplying, Cutting, Beding, Binding and Hooking and binding with wire for RCC work Tor steel TMT round bar confirming to IS 1786, Fe-500/500D including all cost

1:0. Materials

1.11. TMT bars of Fe-500/500D should be confirming to IS:1786.

2.0. Workmanship

2.1. The work shall consist of furnishing and placing reinforcement to the shape and dimensions shown as on the drawings or as directed.

2.2. Steel shall be clean and free from rust and loose mill scale at the time of fixing in position and subsequent concreting.

2.3. Reinforcing steel shall conform accurate to the dimensions given in the bar bending schedules shown an relevant drawings. Bars shall be bent cold to specified shape and dimensions or as directed, using a proper bar bender, operated by hand or power to attain proper radius of bends. Bars shall not be bent or straightened in a manner that will the material. Bars bent during transport or, handing shall be straightened before being used on the work. They shall not be heated to facilitate bending. Unless otherwise specified, a 'U' type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less than twice the diameter of circle having an equivalent effective area. The hooks shall be suitably encased to prevent any splitting of the concrete.

2.4. All the reinforcement bars shall be accurately placed in exact position shown on the drawings, and shall be securely held in position during placing of concrete by annealed binding wire not less than 1 mm in size and by using stay blocks or metal chair spacers, metal hangers, supporting wires or other approved devices at sufficiently close intervals, Bars shall not be allowed to sag between supports nor displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible material. Wooden and metal supports shall not extend to the surface of concrete, except where shown on drawings. Placing bars on, layers of freshly laid concrete as the work progresses from adjusting bar spacing shall not be allowed. Pieces of broken stone or brick and wooden blocks shall not be used. Layers of bars shall be separated by spacer bars, precast mortar bricks or their approved devices. Reinforcement after being placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed: To prevent reinforcement form corrosion, concrete cover shall be provided as indicated on drawings. All the bars producing from concrete and to which other bars are to be spliced and which are, likely to be exposed for a period exceeding 10 days shall be protected by a thick coat of neat cement grout.

2.5. Bars crossing each other where required shall be secured by binding wire (annealed) of size not less than 1 mm in such a manner that they do not slip; over each other at the time of fixing and concreting:

2.6. As far possible, bars of full length shall be used. In case this is not possible. Overlapping of bars shall be done as directed, when practicable, overlapping bars shall not touch each other, but be kept apart by 25 mm. or 1.25 times the maximum size of the coarse aggregate whichever is greater by concrete between them. Where not feasible, overlapping bars shall be bound with annealed wires not less than 1 mm. thick twisted tight. The overlaps shall be staggered for different bars and located at points, along the span where neither shear not bending moment is maximum.

2.7. Whenever indicated on the drawings or desired by the Engineer-in- charge, bars shall be joined by couplings which shall have a cross-section sufficient to transit the full stresses of barso he ends of the bars that are joined by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than the normal cross- section of the bar. Threads shall be standard threads: Steel for coupling shall conform to I:S.226 (Latest edition)

2.8. When permitted or specified on the drawing's joints of reinforcement bars shall butt-welded so as to transit their full stresses. Welded joints shall preferably be located at points when steel will not be subject to more than 75 percent of the maximum permissible stresses and welds so staggered that at any one section not more than 20 percent of the rods are welded. Only electric arc welding using a process which excludes air from the molten metal and conforms to any or all other special provisions for the work shall be accepted. Suitable means shall be provided for holding bars securely in position during welding. It shall be ensured that no voids are left in welding and when welding is done in two or, three stages, previous surface shall be cleaned properly. Ends of the bars shall be cleaned of all loose scale, rust, grease, paint and other foreign matter before welding. Only competent welders shall be employed on the work. The M.S. electrodes used for welding shall conform to I.S. 814 (Latest edition). Welded pieces of reinforcement shall be tested: Specimen shall be taken from the actual site and their number and frequency of test shall be as directed.

3.0. Mode of measurements & payment

3.1. Reinforcement shall be measured in length including overlaps, separately for different diameters as actually used in the work. Where welding or coupling is resorted to, in place of lap joints, shall be measured far payment as equivalent length of overlap as per design requirement. From the length so measured, the weight of reinforcement shall be calculated in Kgs. Length shall include hooks at the ends. Wastage and annealed steel wire for binding shall not be measured and the cost of these items shall be deemed to be included in the rate for reinforcement.

3.2. The rate for reinforcement includes cost of steel binding wires, its carting to work site, cutting, bending; placing, binding and fixing in position as shown on the drawings and as directed, It shall also include all devices for keeping reinforcement in approved position, cost of joining as per approved method and all wastage and spacer bars.

3.3. The rate shall be for a unit of One Kg.

Item No. 22

Masonary work using Aerated Light Weight concrete block having crushing strength

not less than 35kg/sq.cm. (As per IS standard) for super structure above plinth level to ALL FLOOR in chemical mortar complete as per technical Specification. (FOR ALL FLOOR)
(Note:-Masonary work using Aerated Light Weight concrete block used In Site As Per wall thickness size 300mm , 230 mm or 100mm are Instructed By Site In charge.)

1.1. In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.
1.2. The relevant specification shall be followed as per General Technical Specification for Building work Booklet It. No. 6.13(A) P. No. 51. Read autoclaved aerated cement concrete blocks with crushing strength 40 kg/sq.cm instead of common burnt brick having crushing strength 35 kg/sqm. Item shall be carried out at any floor level.
1.3 The work shall be carried out as per Indian standard specification IS : 2185 (Part-3) - 1984 for concrete masonry units Part-3 Autoclave cellular (aerated) concrete blocks.
4.1 The autoclaved aerated blocks shall be classified in two grades according to their compressive strengths as indicated in Table under:

PHYSICAL PROPERTIES OF AUTOCLAVED AERATED CONCRTETE BLOCKS				
S. No.	**Density in over dry condition**	**Compressive strength Grade-I**	**Grade-II**	**Thermal conductivity in air dry condition**
	kg/m^2	N/mm^2	N/mm^2	W.m.k
i	451 to 550	2.0	1.50	0.21
ii	551 to 650	4.0	3.0	0.24
iii	651 to 750	5.0	4.0	0.30
iv	751 to 850	6.0	5.0	0.37
v	851 to 1000	7.0	6.0	0.42

1.0 **INDIAN STANDARDS**:
Work shall be carried out to Indian Standards and Code of practices. In absence International Standards shall be followed. These shall be latest issue. List given here under is not to be considered as conclusive and is for reference and guidance only. Any discrepancies / conflict noticed shall be directed to the EIC for his direction / approval. However, as a general rule more stringent specification shall take precedence.

IS: 269	Specification for ordinary and low heat Portland cement
IS: 383	Specification for Coarse and fine aggregate from natural sources for concrete
IS:456	Code of practice for plain and reinforced concrete.
IS: 1489	Specification for Portland – Pozzolona cement
IS: 2185	Specification for concrete masonry units hollow and solid cement blocks.
IS: 8112	Specification for ordinary Portland cement grade 43
IS: 9103	Specification for admixtures for concrete.
IS: 13757	Burnt clay fly ash building bricks

2.0 **MATERIALS**
2.1 Cement
The cement shall be ordinary Portland cement conforming to IS. Approved branded cement shall be used. It shall be received in bags of 50 kg (or in bulk carriers in case of storage in silos) and each batch shall be accompanied with test certificate of the factory. Also it shall be tested before use to ascertain its strength, setting time, etc. In case cement has been stored for over 6 months from date of manufacturer or for any reasons the stored cement shows signs of deterioration or contamination, it shall be

tested as per the direction of the Engineer prior to use in the works. In case blended cement is used, it shall be factory blended only (fly ash only up to 25%)

2.2**Aggregate**

2.2.1 Aggregate shall conform to IS 383 requirements Coarse aggregate shall be obtainedfrom natural sources such as stone, gravel etc. crushed or uncrushed from identified and approved quarries. Aggregate shall be hard, durable, clean and free from adherent coatings. The seasonal changes shall be well guarded. Grading shall be as indicated in IS 383. Fineness modules of the combined aggregates shall be between 3.6 and 4. Coarse aggregates shall be free from harmful materials such as iron, pyrites, coal, mica, shale or similar laminated material, clay, alkali, soft fragments sea shells, organic impurities etc. Impurities present within acceptable limits shall not adversely affect strength and durability.

2.2.2 **Fine aggregate**:

Sand shall be well graded, hard, durable, clean and free from adherent coating and organic matter and shall not contain any appreciable amount clay. Sand shall not contain harmful impurities such as iron, pyrites, coal particles, lignite, mica shale or similarlaminated material, alkali, and organic impurities in such form orquantities so as to affect the strength or durability of concrete ormortar. The seasonal changes shall be well guarded. Sand shall beinvariably washed using screw type sand washing machine only ifthe silt content is not within the permissible limits. When tested as per IS 2386 part I and II, fine aggregate shall not exceed permissible quantities of deleterious materials as given.

2.3 Water

2.3.1 Water used for mixing and curing shall be clean reasonably clear andfree from objectionable quantities of shell, silts, alkalis, acids etc.

2.3.2 Water tested shall be in accordance with IS 3025, Maximum permissible limits of deleterious materials in water shall be as givenin IS 456.

2.4 Concrete Work

Factory made Autoclaved Aerated Concrete block, hydraulically pressed, machinevibrated steam cured only shall allow to be used in the work. The approval of Engineer shall be obtained before used of blocks. Autoclaved Aerated Concrete blocks shall be solid and shall be referred to by its nominal dimension. The term nominal dimension includes the thickness ofthe mortar joint. Actual dimensions shall be 10mm short of thenominal dimensions. Blocks shall be made in sizes and shapes to fitdifferent construction needs. It includes stretcher, corner, double corner or pier, jambs, header, bull nose, partition block and concretedfloor units.

2.4.1 Nominal dimensions of concrete blocks shall be,

Length	400,	500	or	600 mm
Height	200,	250	or	300 mm
Width	100,	150, 225	or	300 mm

In addition, block shall be manufactured in half length of 200, 250 or 300 mm to correspond to the full length.

Maximum variations in length shall be 5% in length and 3% in widthandheight. Face shells and webs shall not be less than the values given in thereproduced table 15 of Annexure.

2.4.2 Grade of concrete for block shall be M10 with maximum watercement ratio of 0.35 for concrete. Concrete shall be mixed in the mechanical mixer. Blocks shall be moulded, lad and compacted with automatic machines only. No hand / manual compaction shall be permitted. Care shall be taken to see that the mix is placed inlayers and each layer thoroughly tamped until the whole mould is filled up. Blocks shall be protected until they are sufficiently hardened to permit handling without damage. Naptha based superplasticizer; admixtures of doses prescribed by the manufacturer shall be used. Mixed designed shall be done and established with sufficient trial mixes.

Cured blocks shall be allowed to dry for a period of 30 days before being used. The

blocks shall be allowed to complete their initial shrinkage before they are laid in the wall.
2.4.3 All blocks shall be sound free of cracks or other defects. For exposed construction face or faces shall be free of chips, or other imperfections, and the overall dimensions of the blocks shall be in accordance to tolerance as specified.
2.4.4
Blocks shall be considered as per IS if requirements of conditions mentioned in IS 2185 (Part III) are satisfied.
1. The number of blocks with dimensions outside the tolerance limit and/or with visual defects, among those inspected shall not be more than two.
2. Density and compressive strength shall be greater than or equal to the minimum limit specified in table 2 of IS 2185(part I) (table 16 of Annexure)
3. Drying shrinkage shall not exceed 0.1 per cent.
4. Water absorption shall not be more than 10 per cent by mass.
2.4.5 Mandatory laboratory test as per IS 2185 part-III of Aerated Autoclaved Cement Concrete block shall be done at a lot of every 10,000 blocks for each test shown below.
(1) Block density
(2) Compressive strength
(3) Thermal conductivity
(4) Drying shrinkage

2.5 MORTAR

2.5.1 Mortar shall be prepared by using anti-shrinkage compound (as specified by manufacturer of approved chemical) mixing fine graded aggregate with cement in the proportion specified for respective items of work. Mixing of mortar shall be done by mechanical mixers only. Hand mixing may be permitted in specified cases on the written permission of the Engineer-in-charge. No shrinking compound shall be added to the mortar as per direction of manufacturer.
2.5.2 Mortars shall be specified by proportion. Volumetric mixing shall be based on dry volumes of each ingredient. For convenience, measurement shall correspond to volume of one cement bag i.e.0.035 cu m. Boxes shall be of size 40 X 35 X 25 cm. These shall be marked as mortar mixing boxes by red paint and shall be used throughout the contract. Hand mixing or mechanical mixing proportion shall be done with the use of these boxes.
2.5.3 Cement mortar shall be prepared by mixing cement, sand and no shrinkage compound in specified proportions. Proportioning shall be carried out as detailed above. Sand shall be added suitably to allow for bulkage if required. Bulkage shall be determined as specified in IS 2386 Part III. Cement and sand added to mixer shall be thoroughly mixed and water shall be added to it gradually. After addition of water the mixer shall run for a minimum of 3minutes.The mortar mixed shall be consumed within 30 minutes of its mixing.
2.5 Admixtures
Additives or admixtures may be added to the cement or concrete mix conforming to the following Indian Standard specifications.
1.IS 9103 Specifications for admixtures for concrete
2.IS 3812 Specifications for fly ash for use as pozollana and admixture.
3. IS 2645 Specifications for integral water proofing compound.
Other additives or admixtures not being governed by Indian standards shall be tested and checked that the same are not detrimental to durability. Any usage shall only be after the approval of the Engineer.
2.7Joint Fillers
Bituminous impregnated, premoulded joint filler board shall be of approved quality, manufacturer and conform to IS 1838 Part I.
2.8 Metal reinforcement
Expanded metal used shall comply IS 412.
2.9 Delivery / Storage

2.9.1 Load, unload deliver, store all concrete blocks with due care at siteto be free from damage, dirt, intrusion of foreign materials etc.
2.9.2 Store all concrete block units on raised solid platforms.
2.9.3 Protect block from any excess of weather conditions.

3.0 SCOPE OF WORK
Provide construct with specified strength, quality Autoclaved Aerated Concrete block masonry or burnt clay fly ash brick masonry conforming to IS Code of Practices, approved method of statement by Engineer, including providing levelling course PCC M20 grade to adjust with full size blocks / bricks, approved mix of mortar, construction and expansion joint filers, metal reinforcement wherever required of type, size and shape, providing special bond adjusting blocks, reinforced patli (course runner beams of concrete M20 required double – legged scaffolds etc. complete).
4.0 WORKMANSHIP
4.1Concrete Block shall not be wetted like brick masonry prior to use. In total dry climate top and sides may be slightly moistened to avoid absorption of water from mortar. The column surface and beam bottom shall be prepared properly by hacking to avoid debonding.
4.2 Concrete block work shall be laid in English bond. Joints shall not be bigger than 10 mm and will be perfectly horizontal and vertical Joints shall be raked 10 m deep while mortar is green.
4.3 Cut blocks shall not be used . Special solid precast blocks at site shall be cast well in advance to be used as spacers and to adjust breaking of vertical joints.
4.4 Cracks in block masonry are due to shrinkage or expansion of blocks or due to load settlement, thermal expansion or changes in moisture content in the structural members enclosing the block walls. The following measures are recommended to prevent formation of cracks.
a. While curing the block masonry should be lightly sprinkled with water and not made excessively wet.
b. Expansion joints shall be provided in wall exceeding 30 m in length.
c. In framed structures, erection of partition and panel walls should be delayed to take care of deformations due to structural loads.
d. Partition wall should be suitably reinforced in lower courses to strengthen against excessive deflections of floor slabs and should be separated from the ceiling by a layer of resilient material. Joint shall be carried out in plaster or any other finish.
4.5 The last layer of block masonry shall be laid by keeping groove of 15mm x 12mm on the external side, which should be filed up with epoxy mortar and Metal.
4.6 Where required damp proof course layer shall be laid as specified.
4.7 Exposed faces and corners of masonry damaged during construction shall be removed and repaired as acceptable to Engineer.
4.10 Scaffolding
Scaffolding independent of block work, double legged single /multiple staging scaffolding shall be provided. It should be tied to block work or structure at suitable intervals in both directions. Two rows of planks shall be provided. all around. Planks shall be at least 50 mm thick and well-tied to scaffolding. Railing to the outside face shall be provided. While erecting scaffolding, the following points must be noted and closely followed:
1. Minimum number of holes in the horizontal direction. Holes shall be formed by omitting header brick.
2. No holes near the skew backs of arches.
3. Scaffolding must be sound and strong and easy to maintain.
4. Holes left must be closed while finishing the plaster.
4.8 Raking back shall be carried out at an angle nor steeper than 45degrees in case all the block work is not raised together.
4.9 The block should be of full height and no cut pieces shall be allowed. PCC levelling

course shall be laid to fill up the gap.
5.0 ITEM INCLUDES
Items shall include following.
a. Material including all wastages and labour, for the completion of items as specified including any cent ring, shuttering, curing etc.
b. Raking out of joints.
c. Preparing the tops and sides.
d. Forming and preparing expansion, contraction or construction joints as detailed above or specified in the BOQ or drawing.
e. Making holes, openings etc. for outlets, embedding down take pipes etc. wherever necessary during construction, and finishing exposed surfaces as per instruction of the Engineer.
f. Curing and protection as specified.
g. Making holes, openings, outlets etc. embedding pipes, ends of beams, joists, slabs, trusses, sills etc. whatever required during construction and neatly finishing the exposed surface sand opening as per instructions of the Engineer.
h. For masonry use of approved non-shrinking compound in cement mortar.
6.0 Mode of measurement and payment:
All work having any thickness of wall 100mm, 230mm etc. shall be measured in decimal system and cubical contents shall be worked out to the nearest 0.01 cum. The arte shall be including cost of all labour, materials involved and tools required for completion of Autoclave Aerated Cement Concrete block Masonry work including scaffolding.
The work shall be carried out at any floor level and nothing Extra shall be paid for any lead and lift.
The rate shall for a unit of one cubic meter.

Item No.23
Providing and fixing 150 mm wide, approved quality chicken wire mesh at junction of brick/AAC Block work and RCC work or two dissimilar surfaces, at all heights fixed by nails, rowal plugs or tag by cement mortar 1:3 before applying the plaster, including curing, scaffolding all complete as directed.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.
Material, Workmanship and Fixtures & Fastening etc.:
The chicken wire mesh shall be provided to prevent cracks appearing between junctions of column /beams and walls, 150 mm wide chicken wire mesh fixed with U nails, 150 mm center to center before plastering the junction. The plastering of walls and beam/column in one vertical plane should be carried out in one go.
Mode of measurement &payment:
The rates include all materials, labor, tools and plants in satisfactory completion of work as specified above.
The rates shall be for unit of one Sq.mt. for actual work done.

Item No.24:

Cement Plaster Work 12 mm average thick using Cement: Mortar in proportion of 1:3 rough cast (without Niru Finishing) etc. complete (Note: Before carrying out Plaster work on RCC, required tipping work should be carried out as instructed)(FOR ALL FLOOR)

Providing 10mm thk. Cement plaster in single coat on Ceiling & Soffits of stair for interior plastering of following finished even and smooth in Cement Mortar 1:3 (1-Cement : 3-Sand) incl. finishing with a floating coat of neat cement slurry.

Material:

Water shall confirm to M-1.
Cement Mortar shall confirm to M-11

Workmanship:
12 mm thick cement plaster in single coat in CM 1:3 (1-cement : 3-sand) with a floating coat of neat cement slurry.

Scaffolding:
Wooden bullies, bamboos, planks, treatles and other scaffolding shall be sound. These shall be proper examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

This kind of Plaster is normally for interior side or as specified location by consultant to be applied as above. NORMAL CEMENT PLASTER and the surface shall be rubbed smooth after coating it with a thick coat of pure Portland cement slurry while the base coat is still fresh. If Neeru plus cement finish is specified floating with neat cement will not be required.

Mode of Measurement & Payment:
The rate shall include the cost of all materials labour and scaffolding etc. involved in the operations described under workmanship.

All plaster shall be measured in square meter unless otherwise specified length, breadth or height shall be measured correct to a centimeter.

Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm at any point on this surface.

This item includes plastering up to floor all level.
The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height, depth of cover of cornices, if any, shall be deducted.

Soffits of stairs shall be measured as plastering on ceilings. Eloigns soffits shall be measured separately.

For jambs, soffits, sides, etc. for openings not exceeding 0.5 sq.mt. each in area for ends of joints, beams, posts girders, steps etc. not exceeding 0.5 sq.mt. each in area and for openings exceeding 0.5 sq.mt. and not exceeding 3.00 sq.mt. in each area deductions and additions shall be made in the following manner:

No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq.mt. each and no addition shall be made for reverse, jambs, soffits, side etc. of these openings, for finish to plaster around ends of joints, beams, posts etc.

Deductions for openings exceeding 0.5 sq.mt. but not exceeding 3.00 sq.mt. each shall be made as following and no addition shall be made for reverse, joints, soffits, sides, etc. of these openings.

When both faces of all walls are plastered with same plaster.
Deductions shall be made for one face only.

For openings having door squares equal to or projecting beyond the thickness of wall.
Full deduction for opening shall be made from each plastered face of the wall.

In case of openings of area above 3 sq.mt. each deduction shall be made for opening but Jambs, soffits and slits shall be measured.

The rate shall be for a unit of square meter.

Item No. 24

Applying two coats of Approved Made Birla or JK lapy (putty) three coats & three coats of primer of approved brand and manufacture on new wall surface with 2 years warrantee (to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.) (FOR ALL FLOOR)

General :

Scope of work includes cleaning off the entire surface, remove all loose particles, dust, scale, smoke, grease from the surface, sand the surface with Emery paper 180 and wipe clean, applying 2 coats of white Birla putty.

Material:

Birla Putty of Birla Make.

Workmanship:

The Birla Putty shall be of approved brand (Asian, or other approved). Plaster filler (Biral Putty) to be used for filling up uneven surfaces , small cracks and holes etc and it should be done as per the manufacturer's standard guide line. The whole process of paint required 2 times sand with 180 emery paper wipe off and 1-time sand with 320 emery paper wipe off.

Mode of measurement:

All the measurement shall be taken on net surface area actually painted, deduction will be made from the area for fixtures, grills, ventilation, elect boxes and such obstructions not painted, if they are individually more than 0.05 sq.m.

Rate :

Rate is to include for All materials of puttys, sand paper, etc with labour required for scaffolding, cleaning off the surfaces, cleaning the site after completion of job, etc as directed by Engineer-in-Charge. Rate is for the net surface area of Painted surfaces in square meter

Item No.26

20mm thick Sand Face Cement Plaster Work in which 1st plaster in proportion of 1:3 and 2nd plaster in proportion of 1:2 using Cement: Mortar mixed with fiber, spong finishing etc. complete (Note: Before carrying out Plaster work on RCC, required tipping work should be carried out as instructed)for all Floor level.

Material:

Water shall conform to M-1.
Cement Mortar shall conform to M-11

Workmanship:

The work shall be carried out in the coats. The backing coat (base coat) shall be 12 mm thick in C.M. 1:3. The relevant specification is below:

Scaffolding:

Wooden bullies, bamboos, planks, treatles and other scaffolding shall be sound. These shall be proper examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.

Preparation of background:

The surface shall be cleaned of all dust, loose mortar, droppings, traces of algar, efflorescence and other foreign matter by water or by brushing if it is not hard and by hacking if it is hard. In case of concrete surface, if a chemical retarder has been

applied to the form work, the shall be roughed by wire brushing and all the resulting dust and loose particle cleared off and care shall be taken that none of the retarders is left on the surface. Trimming of projections on brick / concrete surfaces where necessary shall be carried out to get on even surface.

Raking of joints in case of masonry where necessary shall be allowed to dry out for sufficient period before carrying out the plaster work.
The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such are shall be moistened again.

For external plaster, the plastering operation shall be started from top floor and carried downwards for internal plaster, the plastering operations may be started whenever the building frame and cladding work are ready and the temporary supports of the ceilings on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.

The plaster about 15 x 15 cms shall be first applied horizontally and vertically at not more than 2 meters intervals over the entire surface to serve as gauge. The surfaces of these gauges shall be truly in plane of the finished plastered surface. the mortar shall than be applied in uniform surface slightly more than the specified thickness, then brought to a true surface by marking a wooden straight edge reaching across the gauges with small upward and sideways movements at a time finally the surface shall be finished off true with a trowel or wooden float according as a smooth or a sandy granular texture is required. Excessive troweling or over working the float shall be avoided. All corners, arises angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering corners, arises junctions etc. shall be carried out with proper templates to the size required.

Cement plaster shall be used half an hour after addition of water, and mortar or plaster which is partially set shall be rejected and removed forthwith from the site.

In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically. When recommencing the plaster, the edges of the old work shall be scrapped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of features such as plaster bonds and cornices nor at the corners or arises. Horizontal joints in plaster work shall not also occur on parapet tops and copings as these invariably lead to leakage. No portion of the surface shall be left out initially be packed up later on the outside of the plaster and keeping them wet.

The thickness of back coat shall be 12 mm average. Before the first coat hardens its surface shall be beaten up by edges of wooden tapers and close dents shall be made on the surface. The subsequent coat shall be applied after this coat has been allowed to set for 3 to 5 days depending upon the weather conditions. The surface shall not be allowed to dry during this period.

the second coat be started over right after finishing of plaster. The plaster shall be kept wet for a period of 7 days. During this period, it shall be protected from all damages.

Mode of measurements & Payments:
The rate shall include the cost of all materials labour and scaffolding etc. involved in the operations described under workmanship.

All plaster shall be measured in square meter unless otherwise specified length, breadth

or height shall be measured correct to a centimeter.

Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm at any point on this surface.

This item includes plastering upto floor two level.

The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height, depth of cover of cornices, if any, shall be deducted.

Soffits of stairs shall be measured as plastering on ceilings. Elowigns soffits shall be measured separately.

For jambs, soffits, sides, etc. for openings not exceeding 0.5 sq.mt. each in area for ends of joints, beams, posts girders, steps etc. not exceeding 0.5 sq.mt. each in area and for openings exceeding 0.5 sq.mt. and not exceeding 3.00 sq.mt. in each area deductions and additions shall be made in the following manner:

No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq.mt. each and no addition shall be made for reverse, jambs, soffits, side etc. of these openings, for finish to plaster around ends of joints, beams, posts etc.

Deductions for openings exceeding 0.5 sq.mt. but not exceeding 3.00 sq.mt. each shall be made as following and no addition shall be made for reverse, joints, soffits, sides, etc. of these openings.

When both faces of all walls are plastered with same plaster. Deductions shall be made for one face only.

- For openings having door squares equal to or projecting beyond the thickness of wall. Full deduction for opening shall be made from each plastered face of the wall.
- In case of openings of area above 3 Sq.mt. each deduction shall be made for opening but Jambs, soffits and slits sha
- ll be measured.
- The rate shall be for a unit of square meter.

Item No.27
Plaster with Groving and Patta of Size 10 to 15 cm wide and 12 to 20 mm thick or Groove size 25 mm with cm 1:3 comp. All Floor.

External Sand Faced Plastering with groove and patta as per given drawing detail etc. of 5 to 10, 12 to 25 cm thick in two coats on brick, concrete, parapet wall for exterior plastering of 12 mm thick backing coat in C.M. 1 :3 (1 Cement: 3 Sand) and 8 mm thick finishing coat of C.M. 1:2 (1 Cement: 2 Sand) and spunge the surface to obtain an even and granular surface including curing etc. complete as directed by engineer-in-charge / consultant.
Mode of measurements & Payments:
The rate shall be for a unit of one Running Meter.

Item No.28
Water Proof Cement Plaster 20 mm thick using Water Proofing Compound and in the

ratio of 1:3 with necessary finishing (Note: Before carrying out Plaster work on RCC, required tipping work should be carried out as instructed) (FOR ALL FLOOR).

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D., relevant drawings and as per the instructions of Engineer-in-Charge.

cement mortar to be used in this case shall be 1:3 i.e., one of the cements; Three parts of clean sand.
Water proofing admixture of approved quality shall be mixed at a rate of 1.5 kg per 50 kg bag of cement. The plaster shall be applied in two coats, first coat of 12 mm thickness be applied and when it dries up second coat of 8 mm thickness shall be applied.
Mode of measurement and payment:
The rate includes cost of all materials, tools, plants and labour involved in satisfactory Completion of work etc. complete.

The rate shall be for unit of One Sqm as per actual work done.

Item No.29
Supply & fixing of 24" x 24" vitrified 8 mm thick (1st quality) tile flooring over 20 mm (average) base of cement mortar 1:6 (1 cement: 6 coarse sand) on new surface and jointed with color cement slurry including finished with flush pointing & cleaning the surface etc. complete for antiskid (FOR ALL FLOOR).

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D., relevant drawings and as per the instructions of Engineer-in-Charge.

1.0. Materials
Approved quality vitrified tiles as approved by engineer-in-charge / architect.

BEDDING
The sub-grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the mason to place wooden planks across and equal on it.
The approved vitrified tiles shall be laid on Cement mortar bedding of 40 mm (as per site condition) thick in C.M. 1:6. The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 40mm at any place and average 20mm (as per site condition) thickness. The proportion of the Cement mortar shall be as specified in the item.
FIXING TILES
The tiles before lying shall be soaked in water for at least two hours. Neat grey cement grout at 3.3 Kg. Cement / Sq. Mt. of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles are smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per pattern.
The tiles shall not have staggered joints. The joints shall be true to centre line both ways. The Nahni trap coming in the flooring shall be so positioned that its grating shall replace only one tile as far as possible. Where full size tiles cannot be fixed, they shall be cut (Swan) to the required size and the edges rubbed smooth to ensure straight and true joints. The joints shall be filled with grey cement grout with wire brush of trowel to a depth of 5mm and loose material removed. White cement shall be used for pointing

the joints. After fixing the tile finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days.

CLEANING

The surplus cement grout that may have come out of the joints shall be cleared off before it sets. Once the floor has set, it shall be carefully washed, cleared by dilute acid and dried. Proper precaution and measures shall be taken to ensure that the tiles are not damaged many ways till the completion of the construction.

Mode of Measurement:

The rate for flooring work shall be paid on square meter basis.

Item No. 30

Supply & fixing of Vitrified for skirting work (1st quality) width up to 10 cm including with cement grouting in joints etc. complete (FOR ALL FLOOR).

The tiles shall be of best quality as approved by the engineer-in-charge. They shall be flat and true to shape. They shall be free from cracks, crazing spots, chipped edges and corners. the glazing shall be of uniform shade. Variation from the stated sizes, other than the thickness of tile shall be plus or minus 1.5 mm. Except as above the tiles shall conform to I S (latest edition).

Skirting should be 10 cm in height from flooring

The rate shall be for a unit of one running meter. (Opening shall be Deduction)

Item No.31

Supply & Fixing of Glazed tiles (1st quality) of required size in Cement Roga and joints to be filled with white cement after 12mm rough plaster in proportion of 1:3

MATERIALS

Glazed Tiles

The tiles shall be of best quality as approved by the Engineer- in-charge. They shall be float and true to shape. They shall be free from cracks, crazing spots, chipped edges and corners. The glazing shall be of uniform shade.

Variation from the stated sizes, other than the thickness of tile shall be plus or minus 1.5 mm. The thickness of tile shall be 6 mm. Except as above the tiles shall confirm to I.S. Latest edition.

BEDDING

The sub-grade shall be cleaned, wetted and mopped. The bedding shall then be laid evenly over the surface tamped and corrected to desired level and allowed to harden enough to offer a rigid cushion to tiles and to enable the mason to place wooden planks across and equal on it.

The Color glazed tiles shall be laid on cement mortar bedding of 12 mm thick in C.M. 1:3. The mortar shall have sufficient plasticity for laying and there shall be no hard lumps that would interfere with the evenness of bedding. The base shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 10mm at any place and average 12mm thickness. The proportion of the cement mortar shall be as specified in the item.

FIXING TILES

The tiles before laying shall be soaked in water for at least two hours. Neat grey cement grout at 3.3 Kg. / Cement / Sq. Mt. of honey like consistency shall be spread over the mortar bedding as directed. The edges of the tiles are smeared with neat cement slurry. The tiles shall be well pressed and gently tapped with a wooden mallet till they are properly bedded and in level with the adjoining tiles. There shall be no hollows in bed or joints. The joints between the tiles shall be as thin as possible in straight line or as per pattern.

The tiles shall not have staggered joints. The joints shall be true to center line both ways. The Nahni trap coming in the flooring shall be so positioned that its grating shall replace

only one tile as far as possible. Where full size tiles cannot be fixed, they shall be cut (Swan) to the required size and the edges rubbed smooth to ensure straight and true joints. The joints shall be filled with grey cement grout with wire brush of trowel to a depth of 5mm and loose material removed. White cement shall be used for pointing the joints. After fixing the tile finally in an even plane the flooring shall be kept wet and allowed to nature undisturbed for 7 days.

CLEANING

The surplus cement grout that may have come out of the joints shall be cleared off before it sets. Once the floor has set, it shall be carefully washed, cleared by dilute acid and dried. Proper precaution and measures shall be taken to ensure that the tiles are not damaged many ways till the completion of the construction.

The rate for this item will be paid on one square meter basis.
rout (Laticrete or equal approved), curing, polishing, cleaned and where
specified or shown in drawing exposed edge of stone rounded / chamfered and polished all complete to the satisfaction of the Client.

Item No. 32.33,36,62

Supply & Fixing of Polished Kota Stone steps and risers work of length 0.90 to 2.00 mtr and thickness 20-25 mm to be fixed in Cement:Mortar 1:2 and Cement slury and as instructed

Supply, Fixing & Polishing of Kota Stone work thickness 20-25 mm to be fixed in cement: Mortar 1:2 and liquid Cement and as instructed (ALL FLOORS) at Seating Area.

Providing and fixing machine cut free edges machine polished Kota stone open storage parallel to walls single piece 25 mm including cutting grooves in walls and fixing the stone including vertical support and shelves with cement mortar 1:4 and finishing the same with neat cement slurry in true line and level and front edge Full round polishing as per detailed drawing and as directed etc. complete.

Supply & Fixing of Polished on both sides of Kota Stone in thickness of 20-25 mm to fix as Urinal Curtain and as per instruction

In general, the work shall be carried out as per the standard Building specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description of Sch-B.

1.0. Materials

1.1. Water shall confirm to M-1. Cement Mortar shall confirm to M-10, Cement mortar shall confirm to M-11, Polished kota stone shall confirm to M-49.

2.0. Workmanship

2.1. Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges. The sides t h u s dressed shall have a full contact if a straight edge is laid along. The sides shall be table rubbed with coarse sand before paving. All angles and edges of the slabs shall be true square and free from chippings and giving a plane surface. The thickness shall be 25 mm. (Average) as specified in this item but not less than 20 mm at any place.

2.2. Bedding for the Kota stone slabs shall be of cement mortar 1:3 (1 cement: 3 coarse sand) of average thickness 20 mm as given in the description of the item. Sub

grade shall be cleaned, wetted and mopped. Mortar of the specified mix and thickness shall be spread on an area sufficient to receive one kota stone slab. The slab shall then be washed clean before laying. It shall be laid on top pressed, tapped gently to bring it in level with the other slabs. It shall then be lifted and laid aside. Top surface of the mortar shall then be corrected by adding fresh mortar at hollows or depressions. The mortar shall then be allowed to harden bit. Over this Surface, cement slurry of honey like consistency shall be applied. The slab shall then be gently placed in position and tapped with wooden I mallet till it is properly bedded in level. with and close to the adjoining slab. The joint shall be as fine as possible. The slabs fixed in the floor adjoining the walls shall enter not less than 10 mm. under the plaster, skirting or dedo. The junction between wall and floor shall be finished neatly. The finished surface shall be true to levels and slopes as directed.

2.3. The floor shall be kept wet for a minimum period of 7 days so that bedding and joints set properly.

2.4. Polishing shall be normally commenced after 14 days of laying the stone slab.

First polishing shall be done with carborundum stones of 120 grade grit fitted in the heavy machine and then deacon polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly u sed during polishing. The stone shall then be washed clean with water. When directed by the Engineer-in- charge; wax polish of approved quality shall be applied on the surface with the help of soft cloth over a clean and dry surface. Then the polishing machine fitted with bobs shall be run over it.

2.5. The holes required for Nahni traps, pipes and other fittings shall be made without any extra cost.

2.6 The kota stone for platform and c.b. shall be supplied and fixed with two side polished and the work shall have to be completed as per requirement and instructions of engineer in-charge.

3.0. Mode of measurements & payment

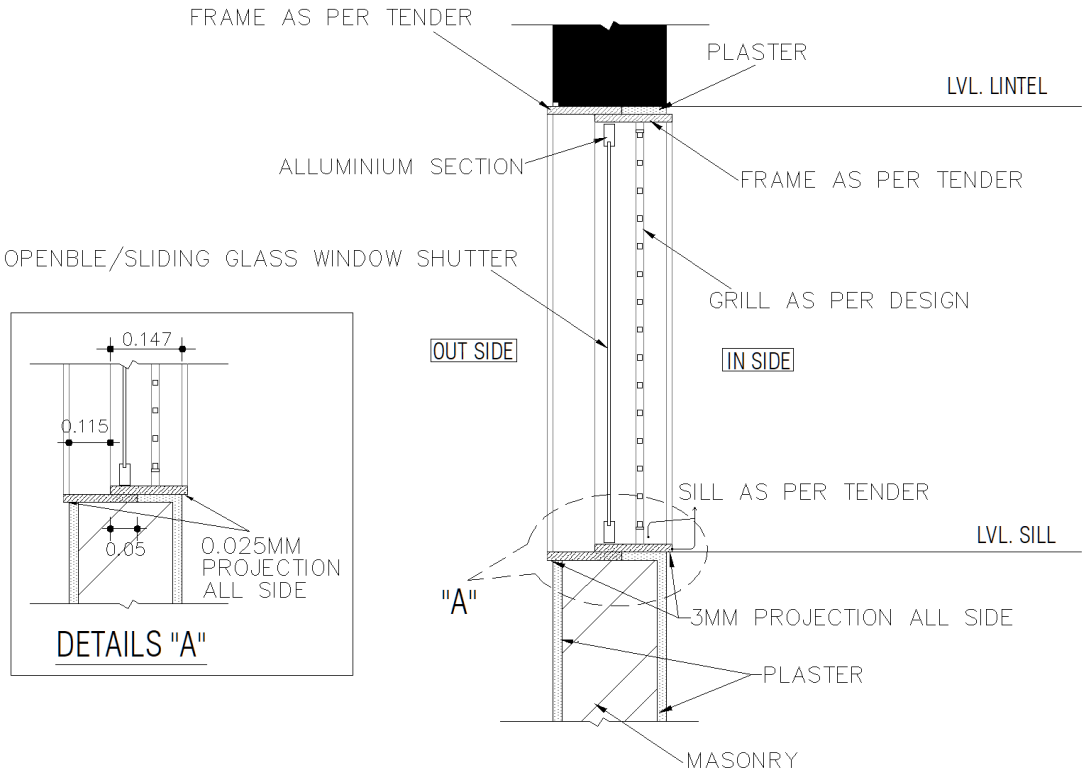
3.1. The rate shall include the cost of all materials and labour involved in all the operations described above. The kota stone flooring shall be measured in square meters correct to two places of decimal, length and breadth shall be measured correct to a: centimeter and between the finished face of skirting dedo or wall plaster and no deduction shall be made nor extra paid for any opening in floor of areas up to 0.1 sq.mt.

3.2. The rate for item shall be for a unit of one sq. meter

Item No. 34:

Supply & Fixing of Machine cut free edges Sill Jams Granite Stone approved shade, thickness on wall after rough cast Cement Plaster in proportion of 1:3 and fixing grainage in Cement Paste in single piece Zigzag pattern (All Open edges should be full round polished). As per drawing or as per instruction given by engineer in charge.

In general, the work shall be carried out as per the standard Building specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description of Sch-B.



WINDOW FRAME SECTION DETAIL

Materials
Water shall confirm to M-1. Cement Mortar shall confirm to M-10, Cement mortar shall confirm to M-11, Polished stone shall confirm to M-49&M-52.

Mode of measurements & payment
The rate shall include the cost of all materials and labour involved in all the operations described above. The stone flooring shall be measured in square meters correct to two places of decimal, length and breadth shall be measured correct to a: centimeter and between the finished face of stone or wall plaster and no deduction shall be made not extra paid for overlapping (Outer to Outer Measure like plain surface)

The rate for item shall be for a unit of one sq. meter.

Item No. 35
Supply, Fixing & Polishing for Granite Flooring work 18mm thick & 200 mm Base of Cement: Mortar in proportion of 1:2 Approved Shade (All Open edges should be full round polished). As per drawing or as per instruction given by engineer in charge.

In general, the work shall be carried out as per the standard Building specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description of Sch-B.

1.0. Materials
1.1. Water shall confirm to M-1. Cement mortar shall confirm to M-11, Polished Kota stone shall confirm to M-49, Polished Granite stone shall confirm to M-52
1.2. Mode of Measurements & Payment

Measurement shall be taken for visible top polished Granite Stone only in length and width (With Necessary Cut out for Sink)

Item No. 34

Apex Color work with water proofing cement paint of on wall surfaces (Two coats or as per instruction of site In charge) to give an approved brand and manufacture and of required shape even shade after thoroughly brushing the surface to remove all dirt and remains of loose powder materials. (FOR ALL FLOOR)

FINISHES

EXTENT AND INTENT

The Developer shall supply all materials, labour, tools, ladders, scaffolding and other equipment necessary for the completion and protection of all painting / finishing work. Painting & finishing, as herein specified shall be applied to all surfaces requiring painting / finishing throughout the interior and exterior of the buildings as given in the schedule of finishes or elsewhere. The painting / finishing shall be carried out by a specialist sub-developer, approved by the Architect.

STORAGE

Storage of materials to be used on the job shall be, only in a single place approved by the Architect. Such storage place shall not be located within any of the buildings included in the contract.

MATERIALS

Materials used in the work shall be of manufacture approved by the Architect, Ready mixed paints, varnishes, enamels, lacquers, stains, paste fillers, distempers and other materials must be delivered to the job site in the original containers, with the seals unbroken and labels intact. Each container shall give the manufacturer's name, type of paint, color of paint and instructions of reducing. Thinning shall be done only in accordance with directions & manufacturer's specification. Remove rejected materials immediately from the premises.

SHADES

All shades, as provided in the shade schedule, shall be approved by the Architect. The Developer shall as far as possible use pre-mixed manufacturer's shades and shall prepare sample of the shades selected and submit same for approval by the Architect. No work is to proceed until the Architect has given his approval, preferably in writing, of the shade samples.

COMMENCEMENT OF WORK

Painting / finishing shall not be started until the surfaces to be painted / finished are in a condition fit to receive painting / finishing and so certified by the Architect.

Painting / finishing work shall be taken in hand only after all other civil work is completed.

Buildings where painting / finishing work is to commenced shall be thoroughly swept and cleaned up before commencement of painting / finishing.

SCAFFOLDING

Only double scaffolding having two sets of vertical supports shall be provided for all, painting / finishing work. The supports shall be tied together with horizontal pieces over which the scaffolding planks shall be fixed.

All the vertical and horizontal members of the scaffolding shall be placed sufficiently away from the surfaces to be painted to ensure proper and unit erupted application.

WORKMANSHIP

The workmanship shall be of the very best; all materials evenly spread and smoothly flowed as without running sags, using good quality tools, brushes, etc., as required. Only skilled painters / applicators shall be employed. A properly qualified foreman shall be constantly on the job whilst the work is proceeding. All surfaces to be painted / finished

shall be cleaned free of all loose dirt and dust before painting / finishing is started. All work where a coat of material has been applied must be inspected and approved before application of the succeeding specified coat. Each undercoat shall be distinct shade of the approved color.
Before painting / finishing, remove hardware, accessories, plates and similar items or provide portion to all such items. Upon completion of each space, replace all fixtures removed. Remove doors if necessary to paint bottom edge. Use only skilled mechanics for the removal and replacement of above items.

CONCEALED SURFACES

All interior and exterior trim, door frames, doors, shelving, cabinet work shall be thoroughly and carefully back painted as all surfaces and edges which will be concealed when installed. Such surfaces shall be clean, dry, sanded and properly prepared to receive the paint. Tops, bottom and edges of doors shall be finished same as the rest of the door.

PROTECT AND CLEAN

The agency shall protect not only his own work at all times, but shall also protect all adjacent work and materials by suitable covering during progress of his work. Upon completion of his work, he shall remove all paint and varnish spots from floors, glass and other surfaces. Any defaced surfaces shall be cleaned and the original finish restored. He shall remove from the premises all rubbish and accumulated material and shall leave the work in clean, orderly and acceptable conditions.

PREPARATION OF SURFACES

PLASTER WORK: Fill all holes, cracks and abrasions with plaster of parish / cement slurry as directed, properly prepared and applied and smoothed off to match adjoining surfaces. Do not use sand paper on plaster surfaces. Plaster shall be allowed to dry for at least 12 (twelve) weeks before the application of paint / finishes.
STEEL AND IRON: All surfaces shall be washed with mineral spirits to remove any dirt or grease before applying paint. Where rust or scale is present, it shall be wire brushed and sand papered clean. All cleaned surfaces shall be given one coat of approved phosphate before prime coat in accordance with the manufacturers, Instructions. Shop coats of paint that have become marred shall be cleaned off, wire brushed, and spot primed over the affected areas.

APPLICATION

The paint shall be continuously stirred in the container so that its consistency is kept uniform throughout.
The painting / finishing shall be laid on evenly and smoothly by means of crossing and laying off, the latter in the direction of the grain of the wood. The crossing and laying off consists of covering the area with paint, brushing the surface hard for the first time and then brushing alternatively in opposite directions, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.
Where so stipulated, the painting / finishing shall be carried out using spray machines suited for the nature and location of the work to be carried out. Only skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought to the requisite consistency by adding a suitable thinner. Spraying shall be carried out only in dry conditions. No exterior painting / finishing shall be done in damp foggy or rainy weather. Surface to be painted shall be clean, dry, smooth and adequately protected from dampness. Each coat shall be applied in sufficient quantity to obtain complete coverage, shall be well brushed and evenly worked out over the entire surface and into all corners, angles and crevices allowed to thoroughly dry. Second coat shall be of suitable shade to match final color, and shall be approved by the Architect before final coat is started. Allow at least 48 hours drying time between coats for interior and 7 days for exterior work, and if in the judgment of the Architect more time is requested it shall be allowed. Finished surfaces shall be protected from

dampness and dust until completely dry. Finished work shall be uniform of approved color, smooth and free from runs, sags, defective brushing and clogging. Make edges of paints adjoining materials of colors sharp and clean, without overlapping.
In order to achieve a superior finished surface, putty paste fillers shall be used on, all surfaces to be painted. To fill pores, dents, etc. The putty / paste fillers shall be approved quality and manufacture and shall be applied to the surface with a knife or other sharp edged tools after the priming coat as well as after each undercoat. The surface, after filling with putty / paste tiller, shall be rubbed down with fine sand paper and dusted off before the application of the subsequent coat.
Paste wood filler when set shall be wiped across the grains of the wood and then with the grain to secure a clean surface. Surface to be stained shall be covered with uniform coat of stain wiped off if required.
FINISH: The painted surfaces shall be finished to require texture. Matt finish shall be achieved by use of sponge rollers or stippling brushes as called for.

TYPES OF PAINT FINISHES

ENAMEL PAINTS:
Non-Galvanized Steel Surfaces: Coat of red oxide primer after phosphate followed by the three or more coats of synthetic enamel paint. Paste filler to be applied after every coat excepting final finishing coat and sanded.

WHITE WASHING/DISTEMPER

White Washing with lime on decorated wall surfaces (two coats) to have given an even shade including thoroughly booming the surface to remove all dirt, dust, mortar drops and other foreign matter.

MATERIALS :

The clear collie shall be made from glue and boiling water by Mixing 1 Kg. Mixture shall be suitably tinted where required for use under colored distemper if directed. Glue shall conform to I.S. 852-1969 (Specifications for animal glue). 1.2 Lime used shall be freshly burnt glass 'C' Lime (fat lime) and white in color conforming to I.S. 712-1973. Best quality of gum shall be used in the preparation of white wash. Ultramarine blue or Indigo: This shall conform to I.S. 55-1970 for points, and shall be used for preparation of white wash, Pigments: Mineral colors, not affected by lime shall be used in preparing color wash.

WORKMANSHIP :

Preparation of white wash solution:
Surface already white or color. The fat lime shall be slaked at site and shall be mixed and stirred with about five liters of water for 1 Kg. Have unslaked lime to make a thin cream. This shall be allowed to stand for a period of 24 hours and then shall be screened through a clean coarse cloth, 4 Kg. of gum dissolved in hot water shall be added to each cubic meter of lime cream. Small quantity of ultramarine burnt *Up to 3 gms. per Kg. Of lime) shall also be added to the last two coats of white wash solution and the whole solution shall be stirred thoroughly before use.

PREPARATION OF SURFACE :

The surface shall be thoroughly cleaned of all dust, dirt, mortar cropping and other foreign matter before white wash is to be applied.
The surface spoiled by smoke soot shall be scrapped with steel wire brushes or steel scrapers or shall be rubbed with over burnt surkhi or brickbats. The surface shall be then broomed to remove all dust, dirt and shall be washed with clean water.
Oil or grease spots shall be removed by suitable chemical and smooth surface shall be rubbed with wire brushes.
All unsound portion of the surface plaster shall be removed to full depth of plaster in rectangular patches and plastered again after raking the masonry joints properly. Such portion shall be wetted and allowed to dry. They shall then be given one coat of white wash.
All unnecessary nails shall be removed; the holes cracks patches etc. shall be made

good with materials similar in composition to the surface to be prepared.

SCAFFOLDING :

Wherever scaffolding is necessary it shall be erected in such a way that as far as possible on part of scaffolding shall rest against the surface to be white or color washed. A properly secured strong and well-tied suspended platform (Zoola) may be used for white washing. Where ladders are used, pieces of old gunny bags shall be tied at top and bottom to prevent scratches to the floors and walls. For white washing of ceilings proper stage scaffolding shall be reacted where necessary.

APPLICATION OF WHITE WASH / DISTEMPER :

On the surface so prepared the white wash shall be applied with "Moon" brush. The first stoke of the brush shall be from top down wards, another from bottom upwards over the first stroke and similarly one stroke from the right another from the left, over the first stroke brush before it dries. This will from one coat. Each coat shall be allowed to dry before next coat is applied. Number of coats as specified in item shall be applied. It shall present smooth and uniform finish free from brush marks and it should not come off easily when rubbed with finger.

Splashing and dropping if any on the doors and windows, ventilators etc. shall be removed and the surface cleaned.

Priming and Alkali resistant treatments, scraping of surface washing etc. surface spoiled by smoke soot removed of oil and grist spouts treatment for infection with efflorescence moulds moss, fungi algae and lichens and patch repairs to plaster wherever done shall not be paid extra.

The payment will be made for a unit of one square meter basis.

Item No. 38

Plastic Emulsion Paint (Two coats) (Asian Paint, ICI, Dulux, Nerolac, Berger etc. of approved type) (with Prime Coat)

1.0. Materials& Workmanship

The relevant specifications of item No. 18.57 (of R&B Building Booklet) shall be followed except that the primer of alkali resistance primer of approved brand and manufacture shall be used instead of distemper primer.

2.0. Mode of Measurements & Payment

2.1. The mode of measurements and payment shall be the same as for item No. 18.57 (of R&B Building Booklet) above.

2.2. Rate shall be for a unit of one square meter.

Item No.39

Cement, lodhiya work with neat cement slurry finishing (FOR ALL FLOOR)

For this work, cement lodhia is to be carried out with mixture prepared in C.M. 1:1 at the placed and size as per the instructions of engineer-in-charge. Curing for the work is to be done for five days.

The rate shall be for a unit of one running meter.

Item No.40

Providing and fixing 35 mm thick good quality flush door shutter with 01 mm laminated sheet on both side and necessary SS and aluminium fixtures and fastening as per satisfaction of Engineer in charge complete.

(FOR ALL FLOOR)

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D., relevant drawings and as per the instructions of Engineer-in-Charge.

The solid core type flush door shutters shall be of decorative or non-decorative type as

specified in the drawing. The size and thickness of the shutter shall be as specified in drawings or as directed. The timber species for core shall be used as per I.S. Latest edition. The timber shall be free from decay and insect attack. Knots and knot holes less than half the width of cross-section of the members in which they occur may be permitted. Pitch pockets, pitch streaks and harmless pin holes shall be permissible except in the exposed edges of the care members. The commercial plywood, cross-bands shall conform to I.S: latest edition.
The face panel of the shutters shall be formed by gluing by the hot press process on both faces of the care with either, plywood or cross-bands and face veneers. The lipping, rebating, opening of glazing; Venetian etc. shall be provided if specified in the drawing.
All edges of the door shutters shall be square. The shutters shall be free from twist of warp in its plant both faces of the shutters shall be sand papered to smooth even texture.
The shutters shall be tested for
(1) **End immersion test :** The test shall be carried out as per I.S. latest edition. There shall be no delamination at the end of the test.
(2) **Knife test :** The face panel when tested in accordance with I.S. latest edition shall pass the test.
(3) **Glue adhesion test :** The flush door shall be tested for glue adhesive test in accordance with I.S.: latest edition. The shutters shall be considered to have passed the test if no delamination occurs in the glue lines in the plywood and if no single delamination more than 80 mm in length and more than 3 mm in depth has occurred in the assembly glue lines between the plywood face and the style and rail. Delamination at the corner shall be measured continuously around the corner. Delamination at the knots, knot holes and other permissible wood defects shall not be considered in assessing the sample.
The tolerance in size of solid care type flush door shall be as under:
In Nominal thickness ± 1.2 mm in Nominal height ± 3 mm.
The thickness of the shutter shall be uniform throughout with a permissible variation of not more than 0:8 mm: when measured at any two points.
1mm Approved Laminates
Hinges Approved Size
SS 20 mm dia Aldrop 25cm length As per_M708
SS Stopper as per_M707
SS Handle for Door 15cm size of ASIS 304 Grade as per_M712

2.0. Workmanship

The relevant specifications of Item No.10.23 shall be followed except that the shutters be non-decorative type and block board core with face veneer or plywood, with 35 mm thickness.
Readymade pinewood water proof approved shutters shall be of correct size and shall fit into the door or other openings without excessive scrapping of edges. Adding of battens etc., to make up to the size shall not be allowed.
flush door other than Kitply/Century/Dura/Everest may be used by the contractor if it is first approved by the authority with all data and required test reports.
The rate shall be for a unit of one sq.meter.

Item No. 41

Providing and fixing FRP frame size 100x50 mm and 28mm thick FRP depress panel shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filed up with injected fire retardant grade polyurethene foam done in situ along with embedded wooden pieces for stiffening & also taking hinges & fintures. The whole FRP frame & shutter is to be water proof weather proof, termite proof & resistance to mild acid/alkali. Rates are to be inclusive of S.S hinges with necessary screws & alluminium fixtures & fastenings & fastener sleeve. (FOR ALL FLOOR)

In general, the work shall be carried out as per the standard Building specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description of Sch-B.

Item No. 42,50
Aluminium section window work (with 3 track mosquito net) (jindal)(with necessary all fittings)

Providing and fixing standard extruded of alluminium section of size 63mm x 38.10mm x 1.2mm (Jindal Section :2434, @ Wt. 0.643 Kg/mt) with colour Powder Coated alluminium frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation.

In general, the work shall be carried out as per the standard Building specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description of Sch-B.

Providing and fixing Aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, S.S. Hinges & Handles etc all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately): (Alu section of Hindalco or Jindal or other equivalent). All the Fixtures and accessories shall be of Dorma or other equivalent as directed by Engineer-in-Charge.

Aluminium Sections:

Aluminium sections used for fixed/openable windows, ventilators, partitions, frame work & doors etc. shall be suitable for use to meet architectural designs to relevant works and shall be subject to approval of the Engineer-in-Charge for technical, structural, functional and visual considerations. The aluminium extruded sections shall conform to IS 733 and IS 1285 for chemical composition and mechanical properties. The stainless steel screws shall be of grade AISI 304. The permissible dimensional tolerances of the extruded sections shall be as per IS 6477 and shall be such as not to impair the proper and smooth functioning/operation and appearance of door and windows. Aluminium glazed doors, windows etc. shall be of sizes, sections and details as shown in the drawings. The details shown in the drawings may be varied slightly to suit the standards adopted by the manufacturers of the aluminium work, with the approval of Engineer-in-Charge. Before proceeding with any fabrication work, the contractor shall prepare and submit, complete fabrication and installation drawings for each type of glazing doors, windows, ventilators and partition etc. for the approval of the Engineer-in-Charge. If the sections are varied, the contractor shall obtain prior approval of Engineer-in- Charge and nothing extra shall be paid on this account.

Anodising

Standard aluminium extrusion sections are manufactured in various sizes and shapes in wide range of solid and hollow profiles with different functional shapes for architectural, structural glazing, curtain walls, doors, window & ventilators and various other purposes. The anodizing of these products is required to be done before the fabrication work by anodizing/electro coating plants which ensures uniform coating in uniform colour and shades. The extrusions are anodized up to 30 micron in different colours. The anodized extrusions are tested regularly under strict quality control adhering to Indian Standard.

It is mandatory that all aluminium members shall be wrapped with self-adhesive non-taining PVC tape, approved by Engineer-in-Charge.
Glass thickness, color, pattern, size as per approved.

Rate:

The rate shall include the cost of all the materials like Alum sections, snap beading, Fixtyres, SS hinges, cylindrical lock, Handles, door stopper, labours involved in all the operations as described in nomenclature of item and particular specification.
The rate shall be for a unit of one Sq.mt.

Item No 43,44
Iron Steel Work as per Instructions

Grill work for doors - windows etc. as per design on site with fitting & fixing. (FOR ALL FLOOR)

All structural steel shall conform to IS 266 - Latest edition. The steel shall be free from the defects mentioned in IS 226 (Latest edition) and shall have a smooth finish. The material shall be free from loose mill scale, rust, pits or other defects affecting the strength and durability. River bars shall conform to IS 1148 Latest edition.
When the steel is supplied by the contractor, test certificate of the manufacturer shall be obtained according to IS 226 Latest edition and other relevant Indian Standards.
The design should be made as per the instructions of engineer-in-charge. The rate includes supplying and welding (along with labours), transportation and fixing in position of the steel work.
The rate shall be for a unit of one Kilogram.

Item No. 45
Enamel painting on door/window, iron door, iron grill or woodwork two coat and including preparing the surface by thoroughly cleaning oil, grease, dirt and other foreign matter, sand papering and knotting. (FOR ALL FLOOR)

1.0.Materials :

1.1. The ready mixed paint, brushing, wood primer pink shall conform to I. S. 3536-1966 (Latest edition).

2.0. Workmanship :

2.1. Preparation of Surfaces :
2.2.I. All wood work shall be dry and free from any foreign matter incidental to building operations. Nails shall be punched well below the surface to provide a firm key for stopping. Moldings shall be carefully smoothened with abrasive paper and projecting fibers shall be removed. Flat portion shall be smoothened off with abrasive paper used across the grain prior to staining and with the grain prior to staining or if the wood is to be left in its natural colour, wood work which is to be stained maybe smoothened to scraping instead of by glass papering if so required.
2.2.2.Any knots, resinous or stricaks or blueish sap wood that are not large enough to justify cutting out shall be treated with two coats of pure shellac knotting applied thinly and extended about 25 mm. beyond the actual area requiring treatment.
2.2. Application of primer :
2.2.1. The relevant specifications of item No. 19.12 (A) shall be followed for application of primer.
1.0. Materials :The enamel paint shall conform to M-44 B.
2.0 Workmanship :
2.1. General:
2.1.1.The materials required for work of painting work shall be obtained directly from approved manufacturers or approved dealer and brought to the site in maker's drums, kegs etc. with seal unbroken.

2 1.2.All materials not in actual use, shall be kept properly protected, lids of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation of skin. The materials which have become stale or flat due to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into small containers. While applying also the paint shall be continuously stirred in smaller container. No left over paint shall be put back into stock tins. When not in use, the containers shall be kept properly closed.
2.1.3. If for any seasons, thinning is necessary, the brand of thinner recommended by the manufacturer shall be used.
2.1.4. The surface to be painted shall be thoroughly cleaned am.' dusted. All rust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed parts of the work shall be carried out in wet, damp or otherwise unfavorable weather and all the surfaces shall be thoroughly dry before painting work is started.
2.2. Application:
2.2.1. Brushing operations arc to be adjusted to the spreading capacity advised by the manufacture of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first lime over and then brushing alternately in opposite directions two or three times and then finally brushing lightly in direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.
2.2.2. Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in shade and shall be got approved from Engineer-in charge before next coat is started.
2.2.3. Each coat except the last cost shall be lightly rubbed down with sand paper of fine pumice stone and cleaned of dust before the next coat is applied. No hair marks from the brush or clogging of paint puddles in the corners of panels angles of moldings etc. shall be left on the work.
2.2.4. Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. Approved best quality brushes shall be used.
3.0. Mode of measurements & payment:
3.1. The relevant specifications of item shall be followed for mode of measurements and payment. The rate is excluding priming coat.
3.2. The rate shall be for a unit of one sq. metre.

Item No.46
Numbering on Building / Quarters (Painting work) as directed.
The writing of Alphabets & Numbers on Building / Quarter shall be written as and where asked to write with approved quality oil paint and colors as required as per the instructions of Engineer-in-Charge. The Alphabets & Numbers of required size shall be written as required.
The payment will be made per Alphabet/Number basis.

Item No. 47
Providing & laying Cement concrete flooring (IPS) 50mm thick in proportion M-15 with a floating coat of neat cement, finishing, curing etc. (For Sunk & Terrace).

1.0. Materials
Water shall conform to M-l. Cement shall conform to M-3. Sand shall conform to M-6. Stone aggregate 20mm. nominal size shall conform to M-12.

Cement concrete M15(1: 2 : 4) proportion measured by volume shall conform to relevant specification or ordinary grade 1 : 2 : 4concrete.

2.0. Workmanship

2.1. The cement concrete flooring of 40 mm thick (Average) is to be laid as per the site condition. The concrete shall be mixed in a mechanical mixer at the work. Hand mixed may however be allowed for smaller quantities of work and in case of failure of machines or as permitted by the Engineer-in-charge. It shall be carried out on a water tight platform and care shall be taken.to ensure that mixing is continued until the mass is uniform in colour and consistency. However, in such cases 10% more cement than otherwise required shall have to be used without any extra cost. The mechanical mixing shall be done for period of 1/2 to 2 minutes. The quantity of water shall be just sufficient of produce a dense concrete of required workability for the purpose. Flooring of specified thickness shall be laid in accordance with approved pattern or as directed. Finishing operation shall start shortly after the cessation of beating and shall be spread over a period one to six hours depending upon the temperature and atmospheric conditions. The surface shall be left for some time till moisture disappears from it. Fresh quantity of cement shall be mixed with water to form a thick slurry and spread over the surface while the concrete is still green. Use of dry cement or cement and sand mixture sprinkled on this surface to stiffen the concrete or absorb excessive moisture shall not be permitted. The cement slurry shall then be properly pressed twice by means of iron floats, once, when the slurry is applied and the second time when cement starts setting and finished smooth. The surface shall be marked with string or B.R.C. fabric jali to make the surface non-slippery as and when directed. The junction of floors with wall plaster, dado or skirting shall be rounded off where so required up to 25 mm. radius. Flooring in lavatories and bath rooms shall be laid after fixing of water closet and squatting pans and floor traps which shall be plugged while laying the floors and opened after the floors are completed. Any damage, done to water supply or sanitary fittings during execution of work shall be made good.

2.2. After the final set, the concrete shall be kept continuously wet, if required by ponding for a period of not less than 7 days from the date of placement.

2.3. The form work shall be provided if necessary, as directed by the Engineer-in-charge. Concreting shall be done as per alternate bay method with necessary centering either by mastic or cement mortar as directed.

3.0. Mode of Measurements & Payment

3.1. The rate shall include the cost of all materials and labour involved in all the operations described above. No deduction shall be made or extra paid for any opening up to 0.1 sq. mt. In area in the floor, nothing extra shall be paid for laying the floor at different levels in the same room or the courtyard.

3.2. Rate shall be for a unit of one square meter.

Item No.48:

Supply & Fixing of Broken Glazed (China Mosaic) tiles size 5-6 mm thick of different size and shade (approved crazy pattern) in Cement: Mortar 1:2 and joint filling with White Cement / Coloured Cement including Ramping, Watering, Curing etc. complete.

In general, the work shall be carried out as per the standard Building specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description of Sch-B.

The work is to be carried out with supply and fixing of Broken Glazed (China Mosaic) tiles of size 5-6 mm thick of different size and shade (approved crazy pattern) in C M 1:2 and joint filling with white cement / coloured cement including ramping, watering, curing etc complete with

25 mm bedding of cement mortar 1:6 with required slope. The whole work of this item is to be carried out and completed as per the instructions of engineer in charge.

The rate shall be for a unit of one square meter basis(Plan Surface Measure).

Item No.49:
Supply & Fixing of 60mm M-30 Grade cement concrete rubber mold paving inter locking paving block (Grey colour) after beding of black stone powder in line, SRI greater than 50, approved technical specification and CC on the edge in proportion of 1:2:4 with curing etc. complete.

5.1 Paver Block Manufacturing facilities

RAJKOT MUNCIPAL CORPORATION, at its discretion shall nominate its representative for inspection of the factory. Party shall co-ordinate and co- operate with representative of RAJKOT MUNCIPAL CORPORATION. The party shall inform the address, telephone numbers and other details of the workshop and the contact person to enable RAJKOT MUNCIPAL CORPORATION depute its representative. The party shall allow entry to RAJKOT MUNCIPAL CORPORATION representative during all working days and time.

The Paver Block shall be made in factory with following minimum facilities:

5.1.1 Design Mix Concrete:

(a) All pavers designated by strength shall be treated as design mix concrete. The aggregate and cement shall be measured by weight in an approved weigh batching equipment. Mixing water shall be measured in graduated litre cans. One or more complete bags of cement shall be used for each batch of concrete.

(b) The contractor shall be responsible for designing mixes of the specified performance to suit the degree of workability and characteristic strength. The mix design shall be finalized before

manufacturing of the paver considering a set of suppliers for cement, sand and aggregates. In case of any change of suppliers of cement, sand or aggregates, party should have design mix ready for alternate suppliers.

(c) The minimum cement content for compacted concrete of pavers shall not be less than 300/350/400 Kg / sq mtr as per design.

(d) The maximum water cement ratio for pavers concrete shall not be more than 0.40

(e) The design mix proportions for each set of raw material suppliers shall be finalized and approved by the authorized lab for the required compressive strength and the lab report with proportions should be available with the vendor at all times for scrutiny and verification purpose.

5.1.2 Paver Block Making Machine:

The machine should be capable of producing high quality Paver Blocks by obtaining high level of compaction by application of hydraulic compaction and also by high intensity vibration to the moulds. The machine should have automatic control panel and shall apply a minimum pressure of 3000 psi and then there shall be automatic cut off of hydraulic circuit without any manual interference. In no case, pavers mould by manual force or by machine without auto cut off shall be accepted. All pavers shall have uniformity in strength.

5.1.3 Weigh Batching & Mixing Equipment:

(a) The proportioning of ingredients of concrete per batch of concrete shall be

performed by an approved weigh batching machine. Water shall be fed into the mixer from a tank provided with means for adjusting the flow of water so as to supply the quantity determined for concrete as per mix design .Due allowance shall be made for the weight of water carried by aggregates so that actual amount added at the mixer can be reduced as necessary. For this purpose the moisture content of coarse and fine aggregates shall be ascertained as and when required and at other times when alteration of the moisture content may be expected due to new deliverance of aggregates, inclement weather or other reasons.

(b) Volumetric batching of concrete may be allowed after the design mix is approved by lab after testing, by converting the proportion of concrete from weight to volumetric measurement subject to facilities being made available by the contractor for verifying and monitoring this.

(c) All necessary equipment such as measuring boxes, devices for determination of moisture and bulking in sand, slump cone, etc. shall be provided by the contractor. Concrete shall be machine mixed until there is a uniform distribution of materials and uniform colour and consistency is achieved and under no circumstances for less than two minutes.

(d) The concrete Mix Design should be followed for each batch of materials.

5.1.4 Curing :

The factory should have well designed curing area to ensure adequate (minimum 14 days) curing of paver blocks.

5.1.5 Laboratory

The factory should have the following:

(i) Compression testing machine of capacity minimum 200 MT
(ii) Other tools and equipment for testing raw materials and paver blocks.
(iii) (1) Systematic record of test results of various paver blocks manufactured in the factory.

(2) Concrete Mix Design for desired grade of concrete used for making of paver blocks.

5.2. Raw Materials.

5.2.1 CEMENT

The cement used in the manufacture of high quality precast concrete paving blocks shall be conforming to IS 12269 (53 grade ordinary Portland cement) or IS 8112 (43 grade ordinary Portland cement) or IS 1489 (Part 1) (Portand- pozzolana cement – fly ash based). The minimum cement content in concrete used for making paver blocks should be 380 kg/Cum.

5.2.2 AGGREGATES

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials, which apart from the grading requirements comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used.

Aggregates shall contain no more than 3% by weight of clay & shall be free from

deleterious salts and contaminants. Zone iv sand shall not be acceptable. Course aggregate shall be 10 mm and below.

5.2.3 WATER

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS: 456-2000.

5.2.4 OTHER MATERIALS

Any other materials / ingredients used in the concrete shall conform to I.S. Specifications.

PIGMENT: The pigment shall be used only on wearing and top surface and throughout the paver block. The pigment used shall not be more than 10% of weight of cement used in the wearing course layer. However, use of pigment shall in no way alter the required strength of the paver block.

Pigment used for coloring paver blocks shall have durable color. It shall not contain matters detrimental to concrete. The pigment shall not contain Zinc compound. Lead pigment shall not be used.

5.3. Pavers Block Characteristics

5.3.0 The inter locking concrete paver tiles should conform to IS-15658 (LATEST). They shall be tested as per the code and have to qualify limits specified by us down below.

5.3.1 The paver tiles should be made of M-30 (80 mm) design mix concrete in approved size and shape. For acceptance the average of compressive strengths of 8 pavers shall be minimum 3 0 N/mm^2 (MPa). Any paver in the tested lot shall not have compressive strength less than 30.1 MPa. If needed, pavers shall be designed and manufactured on higher side to concrete grade M-30 to meet this requirement without extra cost to RAJKOT MUNCIPAL CORPORATION. Testing shall be done as per relevant clauses of IS-15658 (LATEST).

5.3.2 The concrete pavers should have perpendicularities after release from the mould and the same should be retained until the laying.

5.3.3 The surface should be of anti-skid and anti-glare type.

5.3.4 The paver should have uniform chamfers to facilitate easy drainage of surface run off.

5.3.5 The concrete mix design should be followed of each batch of materials separately and weigh batching plant is to be used to achieve uniformity in strength and quality.

5.3.6 The pavers shall be manufactured in single layer or more to ensure smooth surface on top and to remove all voids.

5.3.7 The pavers shall be of cement Grey colour without any pigment or colored with pigment or with chemically treated top surface as specified.

5.3.8 All paver blocks shall be sound and free of cracks or other visual defects, which will interfere with the proper paving of the unit or impair the strength or performance of the pavement constructed with the paver blocks.

5.3.9 The compressive strength requirement of concrete paver block shall be minimum 30 MPa (N/sq.mm) for 28 days (Testing as per IS-15658) after applying the correction factor as per IS-15658 (LATEST). (Please refer clause 3.1 also).

5.4. Paver Block Dimensions

Thickness	60 / 80mm
Shape	Regular (Uniform shape with no Hollow or Cracks)
Chamfer	5 mm to 7 mm along top edges
Thickness of Wearing Layer	Minimum 6 mm (The thickness of the wearing surface shall be measured at several points along the periphery of paver blocks. The arithmetic mean of the lowest two values shall be the minimum thickness of the wearing layer)
Plan Area A_{sp} (Ref. Cl.B-3.3 Annex B, IS-15658 (LATEST))	Maximum 0.03 m^2
Colour	Natural cement Grey colour without use of any pigment OR colour as specified
Dimensional Tolerance	Tolerances as per IS-15658 (LATEST)

Note: All other visual/physical & dimensional acceptance on parameters like aspect ratio, squareness etc to be as per IS-15658 (LATEST)

5.5. Testing of Paver Blocks

1 FOR 60 / 80MM PAVER TILES

TEST	SPECIFICATION Average Values
28 day Compressive Strength	Minimum 30 MPa (N/Sqmm)
Abrasion Resistance	Maximum 2 mm [i.e. 10 units of 1000 mm^3 per 5000 m^2 reported as per E-5 of Annex E of IS-15658 (LATEST)]
Water Absorption	Avg. of 3 units - Maximum 6% by mass (restricted to 7% in individual test units)

Sampling and Testing Procedure strictly As Per IS-15658 (LATEST).

5.6. Laying of Paver Blocks

5.6.1 PRIMING

The contractor is required to verify the existing WBM driveway surface and ascertain the CBR value. Accordingly the total subgrade thickness required for achieving the

desired CBR value shall be advised to RAJKOT MUNCIPAL CORPORATION within seven days of receipt of call-up. RAJKOT MUNCIPAL CORPORATION shall, through regular vendors arrange to carry out such WBM, wherever required. Before taking over the site, the Paver block laying party is required to verify the stabilization of the surface with CBR values. In case, contractor does not advise the CBR value within seven days, RAJKOT MUNCIPAL CORPORATION shall carry out WBM as per own design, and contractor shall have no claim later particularly to the quality of WBM or sub-grade.

It will be the responsibility of the Paver block party to ensure that the Manholes / Pipeline / Cable trenches / circular drainage system etc. is raised to driveway level using the requisite materials as per instruction of EIC. The areas of potholes / deep depressions at the isolated locations shall be filled up and properly compacted before laying the paver blocks. No extra payment will be made for this purpose. The area of raised manholes shall be included in the measurement of overall area of paver blocks for the purpose of payment.

5.6.2 BEDDING SAND COURSE

The bedding sand shall consist of naturally occurring, clean, well graded sand passing through 4.75mm sieve and suitable to concrete manufacture. The bedding should be from either a single source or blended to achieve the following grading.

IS SIEVE SIZE	% PASSING
9.52mm	100
4.75mm	95-100
2.36mm	80-100
1.18mm	50-100
600 microns	25-60
300 microns	10-60
150 microns	5-15
75 microns	0-10

Contractor shall be responsible to ensure that single-sized, gap-graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp, not rounded. The sand used for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence.

The sand shall be of uniform moisture content, which shall be within 4% - 8%, at the time of spreading and shall be protected against rain when stockpiled prior to spreading. Saturated sand shall not be used.

The bedding sand shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be 50mm and within < 5mm. Thickness variation shall not be used to correct irregularities in the base course surface.

The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following spreading. Any pre-compacted sand left overnight shall be loosened before further laying of paver blocks takes place.

Sand shall be slightly spread in a loose condition to the predetermined depth only slightly ahead of the laying of the paver block.

Any depressions in the spread sand exceeding 5mm shall be loosened, raked and re spread before laying of paver block.

5.6.3 LAYING OF INTERLOCKING PAVER BLOCK:

Paver block shall be laid in pattern as specified under cl. 7 throughout the pavement. Once the laying pattern has been established, it shall continue without interruption over the entire pavement surface. Cutting of blocks, the use of infill concrete or discontinuities in laying pattern is not to be permitted in other than approved locations.

Paving units shall be placed on the uncompacted sand bed to the nominated laying pattern; care shall be taken to maintain the specified bond throughout the job. The first row shall be located next to an edge restraint. Specially manufactured edge paving units are permitted or edge units may be cut using a power saw, a mechanical or hydraulic guillotine, bolster or other approved cutting machine. No haphazardly broken pavers shall be used.

Paver block shall be placed with the help of spacers to achieve gaps nominally 2 to 3mm wide between adjacent paving joints. No joint shall be less than 2mm nor more than 4 mm. **However it is mandatory to use 3.0mm wide spacer while laying paver tiles so as to ensure uniform 3.0mm gap between adjacent pavers**. Frequent use of string lines shall be used to check alignment. In this regard, the "laying face" shall be checked at least every two metre as the face proceeds. Should the face become out of alignment, it must be corrected prior to initial compaction and before further laying job is proceeded with.
In each row, all full units shall be laid first. Closure units shall be cut and fitted subsequently. Such closure units shall consist of not less than 25% of a full unit.

To fill spaces between 25mm and 50mm wide, concrete having minimum 1:1:2 cement : sand : coarse aggregate mix and a strength of 40 N/Sqmm shall be used. Within such mix the nominal aggregate size shall not exceed one third the smallest dimension of the infill space. For smaller spaces dry packed mortar shall be used.

Except where it is necessary to correct any minor variation occurring in the laying bond, the paver block shall not be hammered into position. Where adjustment of position is necessary care shall be taken to avoid premature compaction of the sand bedding.

5.6.4 INITIAL COMPACTION

After laying the paver block, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than two (2) passes of a suitable plate compactor.

The compactor shall be a high-frequency, low amplitude mechanical flat plate vibrator having plate area sufficient to cover a minimum of twelve paving units.

Prior to compaction all debris shall be removed from the surface. Compaction shall proceed as closely as possible following laying and prior to any traffic. Compaction shall not, however, be attempted within one meter of the laying face. Compaction shall continue until lipping has been eliminated between adjoining units. Joints shall then be filled and recompacted as described in Clause 6.5

All work further than one meter from the laying face shall be left fully compacted at the completion of each day's laying.

Any blocks that are structurally damaged prior to or during compaction shall be immediately removed and replaced.

Sufficient plate compactors shall be available at the paving site for both bedding compaction and joint filling.

5.6.5 JOINT FILLING AND FINAL COMPACTION

As soon as practical after compaction and in any case prior to the termination of work on that day and prior to the acceptance of any traffic, sand for joint filling shall be spread over the pavement.

Joint sand shall pass a 2.36mm (No. 8) sieve and shall be free of soluble salts or contaminants likely to cause efflorescence. The same shall comply with the following grading limits:

IS SIEVE SIZE	% PASSING
2.36mm	100
1.8mm 90-100	
600mm60-90	
300 microns	30-60
150 microns	15-30
75 microns	10-20

The Contractor shall supply a sample of the jointing sand to be used in the contract prior to delivering any such material to site for incorporation into the works. Certificates of test results issued by a recognised testing laboratory confirming that the sand sample conforms to the requirements of this specification shall be submitted prior to supply of total volume required.

The jointing sand shall be broomed to fill the joints. Excess sand shall then be removed from the pavement surface and the jointing sand shall be compacted with not less than one (1) pass of the plate vibrator and joints refilled with sand to full depth. This procedure shall be repeated until all joints are completely filled with sand. No traffic shall be permitted to use the pavement until all joints have been completely filled with sand and compacted.

Both the sand and paver block shall be dry when sand is spread and broomed into the joints to prevent premature setting of the sand.

The difference in level (lipping) between adjacent units shall not exceed 3mm with not more than 1% in any 3m X 3m area exceeding 2mm. Pavement portions which are deformed beyond above limits after final compaction, shall be taken out and relaid to the satisfaction of the Engineer in charge.

5.6.6 UNIFORM INTERLOCKING SPACES

The pavers should have uniform interlocking space of 2mm to 3mm to ensure compacted sand filling after vibration on the paver surface.

5.6.7 SKILLED LABOUR

Skilled labour should be employed for laying blocks to ensure line and level of pavers, desired shape of the surface and adequate compaction of the sand in the joints.

The rubber mold C C Precast interlocking paving block of approved quality 80 mm thickness, Grey Color and of M-40 And/Or M-30 Grade with concreting 1:2:4 and design shall be supplied by RMC. The bedding of Black/approved stone sand of interlocking block shall be done and the interlocking block shall be fixed hard on it in line and level. The contractor shall have to purchase the block of ISI Mark from the market and same shall have to be got approved from Rajkot Municipal Corporation.

The rate for this work shall be paid on one square meter basis.

Item No. 51
18 guage collepsible gate with primer & double coat oil paint.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 52
Providing & Fixing Solar panel As per directed by site incharge. With Fabrication and all installaton work.

The proposed projects shall be commissioned as per the technical specifications given below. Any short comings will eadtocancelationo forderin full or part as decided by Purchaser. The specifications, In the GERC Regulation on Net Metering shall also be applicable.

1. DEFINITION

A Grid Tied Solar Roof top PhotoVoltaic(SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit(PCU) consisting of Maximum PowerPoint Tracker(MPPT),Inverter, and Controls& Protections, interconnect cables, solar meter, bi-directional energy meter and switches. PVArray is mounted on a suitable structure. Grid tied SPV system is without battery and shall be designed with necessary features to supplement the grid power during daytime. Components and parts used in the SPVpower plants including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., shall confirm to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

Solar PV system shall consist of following equipment/components.

- Solar PV modules consisting of required number of **Crystalline** PV modules.
- Grid interactive Power Conditioning Unit with Remote Monitoring System.
- Mounting structures.
- Junction Boxes.
- Earthing and lightening protections.
- IR/UV protected PVC Cables, pipes and accessories.
- Solar Meter and Bi-directional Energy Meter.

a. SOLAR PHOTOVOLTAICMODULES:

1.1.1. The PV modules used shall be **Made in India**, as per MNRE requirements. Necessary documents in this regard must be provided to Purchaser.

1.1.2. The PV modules used must qualify to the latest edition of IECPV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC61730 Part-2-requirements for construction & Part2– requirements for testing, for safety qualification requivalent IS.

a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify toIEC61701/IS61701

b) The total solar PV array capacity shall not be less than allocated capacity(kWp)and

shall comprise of solar crystalline modules of minimum 300Wp and above wattage with module efficiency not less than16%. Module capacity less than minimum 300 watts shall not be accepted

c) Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
d) PVmodules must be tested and approved by one of the IEC authorized test centers.
e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
f) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid.
g) Other general requirement for the PVmodules and subsystems shall be the following:
   I. The rated output power of any supplied module can have tolerance of+/-3%.
   II. The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2(two) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
   III. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather prooflid with captive screws and cablegl and entry points or may be of sealed type and IP-65rated.
   IV. I-Vcurvesat STC shall be provided by bidder.

1.1.3.The following information must be mentioned in the RFID used on each modules(This can be inside or outside the laminate, butmust be able to withstand harsh environmental conditions).

a) Name of the manufacturer of the PV module
b) Name of the manufacturer of Solar Cells.
c) Month & year of the manufacture (separate for solar cells and modules)
d) Country of origin (separately for solar cells and module)
e) I-V curve for the module Wattage, Im, Vm and FF for the module
f) Unique Serial No and Model No of the module
g) Date and year of obtaining IEC PV module qualification certificate.
h) Name of the test lab issuing IEC certificate.
i) Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001.

1.1.4.**Warranties:**

a) **Material Warranty:**

i. Material Warranty is defined as: The manufacturer shall warrant the Solar Module(s)to be free from the defects and/or failures specified below for a period not less than five (05) years from the date of sale to the original customer("Customer")
ii. Defects and/or failures due to manufacturing
iii. Defects and/or failures due to quality of materials
iv. Non conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s),at the Owners sole option.

b) **Performance Warranty:**

i. The predicted electrical degradation of power generated not exceeding20%of the minimum rated power over the25-year period and not morethan10% after ten years period of the full rated original output.

2. ARRAYSTRUCTURE

a) Hot dip galvanized MS mounting structures shall be of 80 microns but it shall not be less than60 microns at any point used for mounting the modules/ panels/arrays. Each structure shall have angle of inclination as per the site conditions to take maximum

insolation. However, to accommodate more capacity the angle inclination may be reduced until the plant meets the specified capacity utilization factor requirement.

b) The Mounting structure shall be so designed to with stand the speed for the wind zone of thelocationwhereaPVsystemisproposedtobeinstalledinGujarat(150km/hr). It may be ensured that the design has been certified by a recognized Lab/Institution in this regard. Suitable fastening arrangement such as grouting and calming shall be provided to secure the installation against the specific windspeed. **Bidder has to submit the roof top MMS Structural stability certificate from the valid License Holder Structure Engineer as format attached. (Appendix II and III).**

c) The mounting structure steel shall be as per latestIS2062: 1992andgalvanizationof the mountingstructureshallbeincomplianceoflatestIS4759, material thickness shall be minimum2.5mm.

d) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures of proper strength can be used which can with stand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.

e) The fasteners used shall be made up of **stainless steel**. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPVpanels.

f) Regarding civilstructuresthebidderneedtotakecareoftheloadbearingcapacityofthe roof and need arrange suitable structures based on the quality of roof.

g) The totalloadofthestructure(wheninstalledwithPVmodules)ontheterraceshall beless than**60kg/m²**.

h) The minimum clearance of the structure from the roof level shall be **300 mm.**

i) The module mounting structure shall be made of **GImediumclass pipe/GI channel.** The grouting of the structure shall be done byPCC1:2:3,whichshall withstand the windspeed of150km/hr.

3. JUNCTIONBOXES(JBs)

a) The junction boxes are to be provided in the PV array for termination of connecting cables. The J.Boxes(JBs)shall be made of GRP/FRP/Powder Coated aluminum /cast aluminum alloy with full dust, water& vermin proof arrangement. All wires / cables must be terminated through cable lugs. The JBsshallbesuch thatinput&output termination can be made through suitable cableglands.

b) Copper bus bars / terminal blocks housed in the junction box with suitable termination threadsConformingtoIP65standardandIEC62208HingeddoorwithEPDM rubbergasketto prevent waterentry. Single/double compression cable glands. Provision of earthings. Itshall beplaced at **5feet**heightoraboveforeaseofaccessibility.

c) Each Junction Box shall have High quality Suitable Capacity Metal Oxide Varistors(MOVs) / SPDs, suitable Reverse Blocking Diodes.TheJunction Boxesshall have suitable arrangement monitoring and disconnection for each of the groups.

d) Suitablemarkings shallbeprovidedonthe bus bar foreasyidentificationand thecable ferrulesmustbefittedat thecabletermination pointsforidentification

4. DCDISTRIBUTIONBOARD:

a) DC Distribution panel to receive the DC output from the array field.

b) DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs / MCCB shall be provided for controlling the DC power output to the PCU along with necessarysurge arrestors.

5. ACDISTRIBUTIONPANEL BOARD:

a) AC Distribution Panel Board (DPB) shall control the AC power from PCU/inverter, and

shall have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.

b) All switches and the circuit breakers, connectors shall conform to IEC60947, part I, II and III/ IS60947 part I, II and III.
c) The changeover switches, cabling work shall be undertaken by the bidder as part of the project.
d) All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase,415 or 230 volts, 50 Hz
e) The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
f) All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
g) Shall conform to Indian Electricity Act and rules (till last amendment).
h) All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply voltage : +/- 10%
Variation in supply frequency : +/- 3 Hz

6. PCU/ARRAYSIZE RATIO:

a) The combined wattage of all inverters shall not be less than rated capacity of powerplant underSTC.
b) Maximumpowerpointtrackershallbeintegratedinthe PCU/inverter tomaximizeenergy drawnfromthearray.

7. PCU/ Inverter:

AsSPVarray produce directcurrentelectricity,it isnecessary toconvertthisdirectcurrentinto alternatingcurrentandadjustthevoltagelevelstomatchthegridvoltage.Conversionshallb e achievedusinganelectronicInverterandtheassociatedcontrolandprotectiondevices. All thesecomponentsofthesystemare termed the "PowerConditioningUnit(PCU)".Inaddition, thePCU shallalsohouse MPPT(MaximumPowerPointTracker),aninterfacebetweenSolarPV array&theInverter,to thepowerconditioningunit.Inverteroutputshallbecompatiblewith thegrid frequency. Typical technicalfeaturesof theinvertershallbeasfollows:

- Switchingdevices :IGBT/MOSFET
- Control : Microprocessor /DSP
- Nominal AC output voltage and frequency : 415V, 3 Phase, 50 Hz(In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.) or Single phase as per consumer requirements.
- Output frequency : 50 Hz
- Grid Frequency Synchronization range : + 3 Hz or more
- Ambient temperature considered : -20o C to 50o C
- Humidity : 95 % Non-condensing
- Protection of Enclosure : IP-20(Minimum) for indoor.

:IP-65(Minimum) foroutdoor.

- GridFrequency Tolerancerange:+3ormore
- GridVoltagetolerance:- 20% & +15 %
- No-loadlosses:Lessthan1% ofratedpower
- Invertereefficiency(minimum):>95%
- THD:<3%
- PF:>0.9

a) SinglePhase/ ThreePhaseinvertershallbeusedwitheachpower plantsystem.

b) PCU/invertershall becapableofcompleteautomaticoperationincludingwake-up, synchronization&shutdown.
c) TheoutputofpowerfactorofPCUinverterissuitableforallvoltagerangesorsinkof reactive power, invertershall have internal protectionarrangementagainst anysustainable faultin feederlineandagainstthelightningonfeeder.
d) Built-in meteranddataloggertomonitorplant performancethroughexternal computer shallbeprovided.
e) Thepowerconditioningunits/invertersshallcomplywithapplicableIEC / equivalentBIS standard for efficiencymeasurementsand environmentaltests asperstandardcodes IEC 61683/IS 61683andIEC60068-2(1,2,14,30) /Equivalent BIS Std.
f) The charge controller (if any) / MPPT units environmental testing shall qualify IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS std. The junction boxes / enclosures shall be IP 65 (for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.
g) The PCU/ inverters shall be tested from the MNRE approved test centres / NABL / BIS / IEC accredited testing-calibration laboratories. In case of imported power conditioning units, these shall be approved by international test houses.

8. INTEGRATIONOFPVPOWER WITHGRID:

Theoutput power fromSPVwouldbe fedtotheinverterswhichconverts DCproducedbySPV arraytoACandfeedsitinto themainelectricitygridaftersynchronization.Incaseofgrid failure,orloworhighvoltage,solarPVsystemshallbeoutofsynchronizationandshallbe disconnected from the grid.OncethegridcomesintoservicePVsystemshallagainbe synchronizedwithgridsupply andloadrequirementwouldbemettotheextentofavailability of power.4 poleisolationofinverter outputwithrespect to thegrid powerconnection need to beprovided,as perregulation.

9. DATAACQUISITIONSYSTEM /PLANT MONITORING

i. Data Acquisition System shall be provided for each of the solar PV plant along with necessary SIM card orinternetconnectivity fortheminimumperiod of 5years.
ii. RemoteMonitoringanddataacquisitionthroughRemoteMonitoringSystemsoftwareatt he Purchaser's locationwithlatestsoftware/hardwareconfigurationandserviceconnectivity for online/real timedatamonitoring/controlcompletetobesuppliedandoperationand maintenance/control to beensuredby thebidder.Provisionforinterfacingthesedataon Purchaser'sserverinfutureshallbekept.

10. METERING:

a) Thesolarandbi-directionalelectronicenergymeter(0.5Sclass)shallbeinstalled for the measurement of Import / Export of energy asperguidanceofDISCOM.
b) The bidder must take approval / NOCfromtheConcernedDISCOMfortheconnectivity, technical feasibility, andsynchronizationofSPVplantwithdistributionnetworkandsubmitthe same toGEDAbeforecommissioningof SPV plant.
c) Reversepowerrelayshallbeprovidedby bidder(ifnecessary),asperthelocalDISCOM requirement.Second lineof protectionsuchasnovoltrelay shall be providedwith thesystem as perGERCregulations.

11. POWERCONSUMPTION:

Regardingthegeneratedpowerconsumption, priority needtogive forinternalconsumption first and thereafterany excess powercan beexported togrid at APPC.

12. PROTECTIONS

Thesystemshall beprovidedwithallnecessaryprotectionslikeearthing,Lightning,andgrid islandingasfollows:

12.1. LIGHTNINGPROTECTION

TheSPVpower plantsshallbe providedwithlightning &over voltage protection. Themainaim inthis protectionshall betoreducetheovervoltagetoa tolerablevalue beforeitreaches the PVorothersubsystem components. Thesourceofovervoltagecanbelightning,atmosphere disturbancesetc.TheentirespaceoccupyingtheSPVarray shallbesuitablyprotectedagainst Lightning bydeployingrequirednumberofLightningArrestors. Lightning protectionshallbe provided asper IEC 62305 standard.Theprotection againstinducedhigh-voltagesshallbe provided bythe useofmetal oxidevaristors(MOVs)andsuitableearthingsuchthatinduced transientsfindanalternateroutetoearth.

12.2. SURGEPROTECTION

Internalsurgeprotectionshallconsistofthree MOV typesurge-arrestorsconnectedfrom+ve and –veterminalstoearth(viaYarrangement)

12.3. EARTHINGPROTECTION

i. EacharraystructureofthePVyardshallbegrounded/earthed properly asperIS:3043-1987. Inaddition, thelighting arrester/mastsshallalso beearthedinside thearray field.
ii. Earthresistanceshallnotbemorethan5ohms.Itshallbeensuredthatalltheearthing pointsare bonded togethertomakethemat thesame potential.

12.4. GRIDISLANDING:

i. Intheevent ofapowerfailureontheelectric grid,itisrequiredthat any independent power- producinginvertersattachedto thegridturnoffimmediately.This prevents the DC-to-AC inverters fromcontinuingtofeedpowerintosmallsections ofthegrid,knownas "islands." Powered islandspresent arisk toworkers whomay expectthareatobe unpowered,andthey mayalso damagegrid-tiedequipment. TheRooftopPVsystemshall beequippedwithislanding protection.Inadditiontodisconnectionfromthegrid(duetoislanding protection) disconnection dueto underandovervoltage conditions shallalsobeprovided.
ii. Amanualdisconnects 4poleisolationswitch(RCCB)besideautomatic disconnection togrid wouldhavetobeprovidedatutilityendtoisolatethegridconnectionbytheutilitypersonnel tocarryoutany maintenance.

13. CABLES

Cablesofappropriatesize tobeusedinthesystemshallhavethefollowingcharacteristics:

i. Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
ii. Temp. Range: –10oC to +80oC.
iii. Voltage rating 660/1000V
iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
v. Flexible
vi. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) shall be insulated with a special grade PVC compound formulated for outdoor use.
vii. Cable Routing/ Marking: All cable/wires are to be routed in a RPVC pipe/ GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
viii. The Cable shall be so selected that it shall be compatible up to the life of the solar PV panels i.e. 25 years.
ix. The ratings given are approximate. All the cables required for the plant are to be provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons.
x. Multi Strand, Annealed high conductivity copper conductor PVC type 'A' pressure

extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.

xi. The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.

xii. The size ofeach type ofACcableselectedshallbe basedonminimumvoltagedrop however; themaximumdropshallbelimited to2%.

14. CONNECTIVITY

Themaximumcapacityforinter-connectionwith thegridataspecificvoltagelevelshall beasspecifiedin the GERCregulation forGridconnectivityand norms ofDISCOM and amended fromtimetotime.

15. DRAWINGS &MANUALS:

i. Two sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical datasheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.

ii. Approved ISI and reputed makes for equipment be used.

16. CAPACITYOF SOLARPVSYSTEM ONTHEROOFTOP

TheSolarPVsystemontherooftopoftheselectedbuildingswillbeinstalledforPV capacity permissiblebyDiscomasperregulationissued by GERC.

17. SAFETYMEASURES:

The biddershalltake entireresponsibility forelectricalsafetyoftheinstallation(s) including connectivity with the grid and follow all the safety rules & regulations applicableasperElectricity Act,2003andCEAguidelinesetc.

DISPLAYBOARD: Adisplayboardshallbeinstalledwitheachsystemofminimumsizeof12"X 6"madefromGIsheet ofminimum**20SWG.**Thedisplay boardshouldbefixedneartosolar meter. The text shall include Manufacturer's name and address, phone, fax and mobile numberforimmediate contactin caseofany failureofsystems.

DOCUMENTATION

Twosetsofinstallationmanual/usermanualshallbesuppliedalongwitheachpower plant. Themanualshallincludecompletesystemdetailssuchasarraylayout,schematic of the system,inverter details, workingprincipleetc.Stepbystepmaintenanceand troubleshooting proceduresshall begiveninthemanuals.**Modulelayoutdrawing, hastobesubmittedtothe Purchaserforeachsite. 4nos.setofsingle line diagramandlicensedelectricalcontractors' certificate hasto be submittedfor eachsite.**

BILL OFMATERIAL

TheBidder shallprovidethebillof materialforgridconnect SPVpowerplantmentioningthe quantity of eachof theitemconsistinginthesystem,alongwith theoffer.

SHADOWANALYSIS

Theshadow analysisofeachsitehastobecarriedout byBidderandshallbesubmittedto GEDA,after placementofwork order

GeneralConditions:applicabletoallthe systems

- PVmodulesusedinsolarpowerplants/systemsmustbewarrantedfortheiroutput peak watt capacity, which shall not be less than 90%at theendof12yearsand80% at theendof the25 years.
- TheBoSitems/componentsoftheSPVpowerplants/systemsdeployedmustconfirmto the latest edition of IEC/equivalent BIS standards as specified below:

BoSitem/component	**Applicable IEC/equivalent BIS Standard**	
	Standard Description	**Standard Number**
Power Conditioners/Inverters*	Efficiency Measurements Environmental Testing	IEC 61683 IEC 600682 (6,21,27,30,75,78)
Cables	General Test and Measuring Methods PVC insulated cables for working Voltages up to and including1100 VDo-,UV resistant for outdoor installation	IEC 60227/IS694 IEC 60502/IS1554(partI & II)
Switches/Circuit Breakers/Connectors	General Requirements Connectors-safety	IS/IEC 60947 part I,II,III EN50521
Junction Boxes/Enclosuresfor inverter/charge controller/luminaries	General Requirements	EnclosuresIP54(for outdoor)/IP21(for indoor) asperIEC529

***Mustadditionally conform to therelevantnational/internationalElectricalSafety Standards.**

All wiring for rooftop andgrid connectedsystemsshall beinUV-resistantcertified for solarapplication,concealedingalvanized / UPVCcabletrays withminimum3cm clearance from theterrace/ rooftopfloor.

Mode of measurements & payment

The rate shall be for a unit of one KW.

D

AppendixII

To,
PURCHASER

_____
_____
_____
_____

Date:DD/MM/YY

Subject: Structural stability, sustainability against wind pressure and safety related aspects of mounting structure deployed in solar rooftops.

Madam,

<*NameoftheCompany/Firm*>(the"Company/Firm")isanEmpaneled Vendor of GEDA for implementation of the solar roof tops programme in Government sector by the virtue of being technically qualified for solar roof top tender floated by GEDA during year 2019-20(the "Tender").I, the undersigned <*Name*>,<*Designation*>,the Owner of Company/Firm have also agreed to a bide by the terms and conditions and the technical specifications of the solar roof top PVsystemprovided in the tender document.

In accordance with the provision of the tender, the minimum clearance of the structure from the roof level has been specified as 300mm.Further that the structure design shall be such that it with stands the windspeed of 150kmph and total load of the structure shall not increase 60kg per square meter and that the thickness of the structure material shall not less than 2.5mm.

I/we hereby declare that the module mounting structure and all its components including but not limited to fixing of the solar panels to the structure, welded joints, fasteners, zinc spray, grouting/fixing of the structure to the roof surface etc. installed by us at all the solar roof systems registered with GEDA under the Tender, have been designed to provide adequate stability to bear the load and to with stand the windspeedof150kmph. FurtherI/we certify that I/we have as curtained and vetted the design of the structure ourselves and by a Structural Engineer to ensure stability and safeness of each of the installation to sustain the wind pressure throughout the life span of the installation.

In this regard, we have also obtained the certificate of the Structural Engineer for **EACH** of the installation regarding the stability of the structure and its strength to sustain a wind speed of 150kmph.Thecopyof the certificates of the Structural Engineer is attached here with.

I/we further undertake and assure you that the structural stability of the module mounting structure including all the components installed by us a teach of the site is our responsibility throughout the life span of the solar roof top PVsystem.

I/We also absolve PURCHASER and GEDA of any such responsibility of the safety and the stability of the structure and the solar panels, what so ever that may arise during the lifespan of the solar rooftop PV system.

Thanking you,
Yours faithfully,
Signature
Name
Designation
Stamp of the Company/Firm

Encl: Certificates of the Structural Engineer

Appendix III

On the letterhead of the Structural Engineer

To WHOSOEVERITMAYCONCERN

The under signed, a Structural Engineer/FIRM, registered with<*Name of the registering/licensing authority> (registered with any of the Municipal Corporation/ Municipality, Urban Development Authority) and* having valid License/Registration Number<_____>. The under signed has analyzed the design of the mounting structure of the solar roof top PV system and its fixing withi)the roof surface and ii)the solar panels, installed by M/s. <*Nameof theEmpaneled Vendor*>at the address mentioned below.

Address of the Installation: <*Name of the beneficiary*>
<*Address#1*>
<*Address#2*>
<*City*>
<*GEDA Registration Number*>

Upon satisfying myself on the analysis of the design of the mounting structure of the solar roof top PV system and its fixing withi) the roof surface and ii) the solar panels, Ihere by certify that the design of the mounting structure installed at the above-mentioned address meets the strength and stability of the mounting structure to with stand the wind speed of 150kmph and is safe throughout its lifespan.

This Certificate is issued on the request of<*Name of the Empaneled Vendor*>.

Name of the Structural Engineer	:	
Signature of the Structural Engineer	:	
Stamp	:	
Date	:	

(Structure drawing along with the structure design, part drawing, assembly drawing duly signed and approved to be submitted for each site to be attached.

Item No. 53

SHEETING: Providing, Supplying & erecting of roofing sheets of JSW / Bhushan/TATA or approved made & shade for existing Auction shed made out of Coloured coated Galvalume Sheets 24 gauge with required accessories, Downspouts, flashings, ridges etc. of approved shade, design & Trapezoidal Hi-rib profile including all required machineries, scaffolding, labours, tools & plants. Sheets to be fixed by 16/19 mm bonded washer Zinc Tin Mechanical Coating Class 3 self-drilling screw of "Corroshield" make at required spacing etc. complete as directed by an architect. Payment should be made on the basis of sqmt. of actual erection only. Wastage & surplus material should not be measured or paid. All accessories shall be inclusive in rates.

1. MATERIALS:

Roofing, gable and wall sheets for shed and all accessories like flashings, ridges, etc. made out of Coloured coated Galvalume Sheets 24 gauge (approx. 0.42 mm BMT ,0.5mm TCT) as per ASTM A792 (M), Minimum Y.S. 550 Mpa, AZ 150 of approved make and shade, design & profile.

2. ERECTION:

Erection shall be done by certified erector and shall be done by using modern cranes and other techniques.

All sheeting fasteners will be regular Zinc coated self-drilling screw of Hilti / Corroshield / HP or approved make at required spacing with assembled sealing washer of EPDM. Same color caps shall be of the same material as panels.

3. MODE OF MEASUREMENT & PAYMENT:

Weight of roofing sheets erected at site shall be measured correct to two places of decimals and the net weight worked out from the standard steel tables approved by Indian Standard Institution and paid accordingly only. Architect's decision on measurement & weight shall be final and binding to contractor. No wastage of the sheets, accessories, flashings, ridges, rainwater pipes etc. should be measured or paid. No separate measurements shall be paid for any accessories. However, contractor should submit original Weigh slip of weight to architect dully signed by representative of Authority & EIC for verification purpose if required.

The rate includes cost of all material, labour, erection, hoisting, protective measures required for proper completion of the item of work. This shall also include providing, supplying and erecting at site, conveyance and delivery, handling, loading, unloading and storing etc. required for completing the item described above including necessary wastage involved.

Actual laid area at site shall be measured & same shall be paid in one Sqmt. (wastage, Surpuls and overlapping should not be measured or paid)

Item No. 54

Core Cutting for all Diametre & any beam including all required machinary as per directed by site in charge. Up to all floor.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 55,56,57,58,59
Providing and fixing Uropean type w/c with sit, cover fixing with comp. standard quality. without P or S trap including jointing the trap with soil pipe in Cement Mortar 1:1 (1-Cement : 1-fine sand) (A) vitreous China Pattern :(i) in white colour

Providing and fixing 100mm size P or S trap for water closet squatting pan including jointing the trap with the pan and soil pipe in cement Mortar 1:1 (1-Cement : 1-Fine sand)(A) Vitreous China. (FOR WC)

Health Faucet Jet Spray for Toilet Chrome Silver with PVC Hose pipe & HOOK Faucet Set (Wall Mount Installation Type)(For WC)

Flushing Valve Brass Cromium Platted push cock or handle type with flushing supply and fixing (FOR WC)

Providing and Fixing Dual Flush Tank Stong PVC Material Suitable for all WC (FOR WC)

Providing and fixing G.I. inlet connection for flush pipe with W.C. Pan (FOR WC)

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D./ G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

1.0. Materials
wash doen water closet (European type W.C. Pan) shall conform to M-60. Cement mortar shall conform to M-11.
The G.I. inlet connection for flush pipe shall conf.orm to M-56.
plastic seat & cover for wash down water closet with c.p brass hinges and rubbers buffers of colour match to the E.W.C.pan
Approved Health Faucet jet spray chrome silver with PVC hose pipe & Hook, Wall Mounted.
The low level Dual flushing tank PVC shall conform to M0316 except that the flushing cistern shall be 12.5 liters low level type as mentioned in the item.

1.1. Workmanship
The closet shall be fixed to the floor by means of 75 mm. long 6.5 mm. diameter counter sunk bolts and nuts embedded in the floor concrete using rubber or fibre washers so as not to allow any lateral displacement. The joint between the trap of W.C. and soil pipe shall be made with CM. 1:1(1 cement :1 Surat Urban Development Authority 169 of 199 fine sand).
The 'P' or 'S' trap shall be fixed with pan cast iron pipe with CM. 1:1. The pan shall be provided with a 100 mm. 'P' or 'S' trap as specified in the item with an approximately 50 mm. seal. The joint between the pan and the trap shall be made leak-proof with cement mortar 1:1(1 cement: 1 fine sand)
The flush pipe from the cistern shall be connected to the closet by means of cement of red-lead.
The low level cistern shall be firmly fixed on two C.I. or mild steel, brackets which shall be firmly embedded in the wall in CM. 1:4 (1 cement :4 fine sand)
The height of the bottom of the cistern from the top of the pan shall be 30 cms or low level flushing cistern shall be connected to the closet by means of 40 mm. dia. white porcelain enamelled flush bend using Indian rubber adaptus joint. The flush pipe shall be securely connected to the cistern outlet by means of coupling nut made of any non-corrosive materials, non-ferrous metal or galvanised steel. The flush pipe from the cistern shall be connected to the closet by means of cement or red-lead.
2.1. Mode of measurement and payment

The rate includes cost of all materials and labour involved in all the operations described under workmandship.
The rate includes cost of all labour for fixing pans,seat and cover, inlet, connections and flushing cistern with a pair of C.I. or mild brackets complete with fittings such as lead value less syphon 15mm nominal size brass ball valve with polythene float C.P. brass handle unions and couplings for connection with inlet, outlet and overfl
ow pipes etc. complete including testing the same. The payment of seat and cover shall be made separatley.
The rate shall include the cost of all materials, fitting and labour involved in all the operations described under workmanship including testing.

The rate shall be for a unit of One number of Each Item No.(55 to 60).

Item No. 61
Supply & Fixing White Porselin Urinal with require plastic waste pipe fitting and fixing.

1.0 Materials:
1.1. White Porselin Urinalof 550 mm. x 300 mm. or as directed by Engineer-in-charge for approved size, shape & makewhich shall conform to I.S. 771-1063. It shall be of best Indian Make.
2.0. Workmanship:
2.1. The squatting plate urinal shall be fixed as directed.
2.2. The lop edge of the squatting plate shall be flush with the finished floor level adjacent to it. It shall be embedded on alayer of 25 mm. thick cement mortar 1:8(1 cement: 8 fine sand) laid over a bed of burnt brick bl cement a: 5 : 10 (1 cement: 5 fine sand. 10 graded brick aggregate 20 mm. nominal size). There shall be 100 mm. dia. glazed earthenware of vitreous china channels as specified with stop and outlet pieces suitably fixed in floor in Cement mortar 1:3(1 cement: 3 coarse sand)and joint finished with white
cement. The earthenware vitreous china shall discharge into 65 mm. C.P. brass outlet grating. The trap and fitting shall be fixed as directed.
3.0. Mode of measurements & payment:
3.1. The rate includes cost of all materials, tools and plants and labour required for satisfactory completion of this item.
3.2. The rate shall be for a unit of one number.

Item No.63
Providing & Fixing White porselin wash bassin 510/410mm indian make c.i. bracket with fitting cromium platted topes 25cm plastic waste pipe and 12mm pillar cock with comp.

Wash basin shall be of white porcelain first quality best Indian make and it shall conform to IS: latest edition. The size of the wash basin shall be as specified in the item. Wash basin shall be of one-piece construction with continued over flow arrangements. All internal angles shall be designed so as to facilitate cleaning. Wash basin shall have single tap hole or two holes as specified. Each basin shall have a circular waste hole which is either revated or beveled internally with 65 mm diameter at top and 10 mm depth to suit the waste fitting. The necessary stud slot to receive the bracket on the underside of the basin shall be provided. Basin shall have an internal soap holder recess which shall fully drain into the bowl. White glazed pedestal of the quality and color as that of the basin shall be provided where specified in the item. It shall be completely recessed at the back for reception of supply and wash pipe. It shall be capable of supporting the basin rigidly and adequately and shall be so designed as to make the height from the floor to top of the rim of basin 410 mm to 800 mm as directed.
The payment will be made on number basis of the finished work.

Item No. 64
Providing and fixing Kitchen SS Sink Glosy ASIS 304 Grade x 1mm thick with over all size

510x432mm & bowl size 445x368x190 including cutting holes in stone and making good the same including C P 32mm waste pipe .

Sinks shall be of stainless-steel material as specified in the Bill of Quantities/Drawings.
Each sink shall be provided with R. S. brackets and clips and securely fixed. Counter top sinks shall be fixed with suitable angle iron clips or brackets as recommended by the manufacturer. Each sink shall be provided with 40 mm dia. Chromium Plated waste with chain and plug or P.V.C. waste with Escutcheon plates. Fixing shall be done as directed by Client's Representative.
Supply fittings for sinks shall be mixing fittings or C.P. taps, angle cocks etc. all as specified in the Bill of Quantities/Drawings.

Item No. 65
Providing & fixing PVC SWR Nahani Trap IS 14735 for drain with jali of the 100 mm nominal diameter of self-cleaning design with C.I. Screwed down or hinged grating including the cost of cutting and making good the walls.

Materials :
The Nahni trap and necessary fittings shall be of rigid PVC and of approved brand and quality having required thickness uniform internal diameter without any defect having capacity of 4 Kg/Sq.cm. internal pressure. the jointing materials for pipe i.e. adhesive solvent cement shall be of approved quality and it shall be such that by applying / using it 100 % water proof joints can be obtained.
Workmanship :
The Nahni trap shall be fitted in pipe line with help of white lead or required material, the joint shall be leak proof and no water seepage shall be allowed.
Mode of measurement and payment:
The rate includes cost of all materials, tools, plants and labour involved in satisfactory completion of work as specified above.
The rate shall be paid per one No. basis.

Item No. 66
Providing and fixing Brass chromium plated screws down bib tap of 15mm nominal dia. of approved quality and brand.As per instruction given by engineer in charge.

1.0. Materials:
15 mm. dia. brass screw down with bright polished finish shall conform to I.S. 781-1977. The bib tap shall be best Indian make and quality.
2.0. Workmanship :
2.1.The screw down bib cock 15 mm. dia. as specified above shall be fixed as directed. The threaded portion shall be smeared with white or red lead and around with a few turns of fine spun yarn round the screwed end of the pipe. The bib cock shall be than screwed and fixed to water tight position.
3.0. Mode of measurements & payment:
3.1. The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this item.
3.2. The rate shall be for a unit of one number.

Item No. 68,69,70
Providing and fixing Gun Metal Check or Non-return Fullway Wheel Valve. 40/50mm,32mm,25mm

MATERIALS
The brass wheel valve shall be fully cleared of all foreign matter before fixing. The fixing of valve shall be done by means of bolts nuts and 3 mm. rubber insertions with flanges of spigot

and socketed till pieces, drilled to the same specification as in case of socket and spigot and with flanges in case of flanged pipes. The jointing small be done leak proof. As directed by Engineer-in-charge or Consultant.

Item No.71,72,73,74

Providing laying and jointing in true line and level (5.16 mm minimum wall thickness) U.P.V.C. Pipe (SCH- 40) for cold water including fittings make as approved by Engineer-in-Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.(50MM,40MM,32MM,25MM,15MM)

U.P.V.C. Pipes

Pipes shall conform to IS 13592 : 1992 (Type A). The internal and external surfaces of the pipes shall be smooth and clean and free from grooving and other defects. The end shall be clearly cut and shall be square with the axis of the pipe. The end may be chamfered on the plain sides. Slight shallow longitudinal grooves or irregularities in the wall thickness shall be permissible provided the wall thickness remain within the permissible limit.

Colour of Pipe :

Surface colour of the pipes shall be as specified.

Marking :

Each pipe shall be clearly and indelibly marked with the following information at intervals not more than 3 metre.

(a) Manufacturer's name or trade mark.
(b) Nominal outside dia of pipe.
(c) Type 'A'
(d) Batch number.

The pipe may also be marked with standard mark.

Dimensions :

UPVC water pipes shall be of the dia, as specified and shall be in nominal lengths of 2,3,4 or 6 metres either plain or with sliding / grooved socket, unless shorter lengths are required at junctions with fittings. The sizes, weights, sockets and tolerances of pipes shall be as shown in Table 1,2,3 & 4. Tolerance on specified length shall be + 0.10mm.

TABLE -1

DIMENSIONS OF PIPES All dimension in mm

Nominal Outside Diameter	Mean Outside Diameter		Outside Diameter at an Point		Wall Thickness S Type A	
	Min.	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
75	**75**	**75.3**	**74.1**	**75.9**	**1.7**	**2.2**
100	**110**	**110.4**	**108.6**	**111.4**	**2.2**	**2.7**

TABLE -2

MINIMUM WALL THICKNESS OF SOCKETS ON PIPES (All dimension in mm)

Nominal Outside Diameter	S 2 Min Type A	S 3 Min Type A
75	**1.6**	**1.0**
110	**2.0**	**1.2**

TABLE -3
DIMENSIONS FOR SLIDING SOCKETS (All dimension in mm)

Nominal Outside Diameter	Socket Dept, C	Mean Inside Diameter of Socket at Midpoint, DI	
		Min.	Max.
75	**40.0**	**75.1**	**75.3**
110	**48.0**	**110.1**	**110.4**

TABLE -4
DIMENSIONS OF GROOVED SOCKET (All dimension in mm)

Nominal Outside Diameter	Inside Diameter of Socket, D1		Inside Diameter of Beading, D2		Length of Beading and Neck A	Neck of Socket B	Length beyond beading C
	Min.	Max.	Min.	Max.	Min.	Max.	Min.
75	**75.3**	**76.2**	**84.5**	**85.5**	**20**	**5**	**35**
110	**110.4**	**110.3**	**120.3**	**121.3**	**26**	**6**	**32**

Fixing and Jointing
Pipes shall be either fixed on face of wall or embedded in masonry as specified.
Plain pipes shall be secured to the walls at all joints with PVC pipe clips by means of 50 x 50x 50 mm hard wood plugs, screwed with MS Screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement: 4 coarse sand). The clips shall be kept about 25mm clear off finished face of wall, so as to facilitate cleaning of pipes.
Pipes shall be fixed perfectly vertical or to the lines as directed. The pipes shall be fitted to fittings with seal ring conforming to IS: 5382 allowing 10mm gap for thermal expansion.
Installation in Wall/Concrete:
The walls/concrete slots should allow for a stress-free installation. Pipes and fittings to be inserted into the slots without a cement base, have to be applied first with a thin coat of PVC solvent cement followed by sprinkling of dry sand (medium size) and then allowed to dry. The process gives a sound base for cement fixation. This process is repeated while joining PVC material to CI/AC materials.
Fittings:
Fittings used shall be of the same make as that of the PVC pipes and shall have a minimum wall thickness of 3.2mm. The fittings shall be supplied with proved socketted ends with square groves and provided with Rubber Gasket conforming to IS: 5382. The plain ends of the fittings should be chamfered. The fittings shall be joined with the help of Rubber lubricant.
Note: These pipes shall be used only in shaft or unexposed location to avoid damage to these pipes due to willful act.
Method of Measurement and Payment
The measurement shall be recorded in running meter of pipe length laid along the centerline of axis of pipeline including tees, enlarges, reducers and bends, correct up to 0.01 m length. No payment shall be made for overlaps etc. The payment shall be made after completion of whole made item as mentioned in price bid on Running Meter basis and 15% shall be withheld for satisfactory hydraulic testing.
The rate includes cost of all materials, tools, plants and labor involved in satisfactory completion of work as specified above.
The rate shall be for a unit of one Rmt of actual work done.

Item No. 75,76

Providing & Fixing Consoled centre point to wall ceiling & floor CPVC (SDR-13.5) PIPE, having National Sanitation Foundation (NSF) seal for potable water of following Dia. including necessary fittings & clamps including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials. 25&15mm

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Material:

CPVC pipes & fittings used in hot & cold potable water distribution system shall conform to requirement of IS 15778. The material from which the pipe is produced shall consist of chlorinated polyvinyl chlorides. The polymer from which the pipe compounds are to be manufactured shall have chlorine content not less than 66.5%.

The internal and external surfaces of the pipe shall be smooth, clean and free from grooving and other defects. The pipes shall not have any detrimental effect on the composition of the water flowing through it.

Diameter and wall thickness of CPVC pipes are as per given in Table 18.16 below.

TABLE 18.16

Sl. No	*Nominal Size Nominal*	*Nominal Outside Diameter*	*Mean Outside Diameter*		*Outside Diameter at any point*		*Wall thickness*					
							Class 1, SDR 11			*Class 3, SDR 17*		
			Min.	Max	Min.	Max.	Avg. Max	Min.	Max	Avg.Max	Min.	Max
1	2	3	4	5	6	7	8	9	10	11	12	13
i	15	15.9	15.8	16.0	15.8	16.0	2.2	1.7	2.2	-	-	-
ii	20	22.2	22.2	22.3	22.0	22.4	2.5	2.0	2.5	-	-	-
iii	25	28.6	28.5	28.7	28.4	28.8	3.1	2.6	3.1	-	-	-
iv	32	34.9	34.8	35.0	34.7	35.1	3.7	3.2	3.7	-	-	-
v	40	41.3	41.2	41.4	41.1	41.5	4.3	3.8	4.3	-	-	-
vi	50	54.0	53.9	54.1	53.7	54.3	5.5	4.9	5.5	-	-	-
vii	65	73.0	72.8	73.2	72.2	73.8	-	-	-	4.8	4.3	4.8
viii	80	88.9	88.7	89.1	88.1	89.7	-	-	-	5.9	5.2	5.9
ix	100	114.3	114.1	114.5	113.5	115.1	-	-	-	7.5	6.7	7.5
x	150	168.3	168.0	168.6	166.5	170.1	-	-	-	11.1	9.9	11.1

Notes

1. For CPVC pipes SDR is calculated by dividing the average outer diameter of the pipe in mm by the minimum wall thickness in mm. If the wall thickness calculated by this formula is less than 1.52 mm, it shall be increased to 1.52 mm. The SDR values shall be rounded to the nearest 0.5.

18.9.2 Dimensions of Pipes

The outside diameter, outside diameter at any point and wall thickness shall be as given in Table
18.16.

18.9.2.1 Diameter: The outside diameter and outside diameter at any point as given in Table 18.16 shall be measured according to the method given in IS 12235 (part 1).

18.9.2.2 Diameter at any point: The difference between the measured maximum outside diameter
and measured minimum outside diameter in the same cross-section of pipe (also called tolerance on ovality) shall not exceed the greater of the following two values:

(a) 0.5 mm, and

(b) 0.012 dn rounded off to the next higher 0.1 mm.

18.9.2.3 Wall Thickness: The wall thickness of the pipes shall be as given in Table 18.16. Wall thickness shall be measured by any of the three methods given in IS 12235 (part 1). To check the conformity of the wall thickness of the pipe throughout its entire length, it is necessary to measure the wall thickness of the pipe at any point along its length. This shall be done by cutting the pipe at any point
along its length and measuring the wall thickness as above. Alternatively, to avoid destruction of the pipe, non-destructive testing methods such as the use of ultrasonic wall thickness measurement gauges shall be used at any four points along the length of the pipe.

Tolerance on Wall Thickness

(a) For pipes of minimum wall thickness 6 mm or less, the permissible variation between the minimum wall thickness (eMin) and the wall thickness at any point (e), (e - eMin) shall be positive in the form of +y, where y=0.1 eMin+0.2 mm.

(b) For pipes of minimum wall thickness greater than 6mm, the permissible variation of wall thickness shall again be positive in the form of +y, where y would be applied in two parts.

(c) The average wall thickness shall be determined by taking at least six measurements of wall
thickness round the pipe and including both the absolute minimum and absolute maximum measured values. The tolerance applied to this average wall thickness from these measurements shall be within the range 0.1 eMin+0.2 mm (see Table 18.16).

(d) The maximum wall thickness at any point shall be within the range 0.15eMin (see Table 18.16).

(e) The results of these calculations for checking tolerance shall be rounded off to the next higher 0.1 mm.

18.9.2.4 ***Effective Length (Le):***

If the length of a pipe is specified, the effective length shall not be less than that specified. The preferred effective length of pipes shall be 3, 5 or 6 m. The pipes may be supplied in other lengths where so agreed upon between the manufacturer and the purchaser.

18.9.3 Pipe Ends

The ends of the pipes meant for solvent cementing shall be cleanly cut and shall be reasonably
square to the axis of the pipe or may be chamfered at the plain end.

18.9.4 Physical and Chemical Characteristics

18.9.4.1 ***Visual Appearance:***

The colour of the pipes shall be off-white. Slight variations in the appearance of the colour are permitted. The internal and external surface of the pipe shall be smooth, clean and free from grooving and other defects.

18.9.4.2 ***Opacity:***

The wall of the plain pipe shall not transmit more than 0.1 per cent of the visible light falling on it when tested in accordance with IS 12235 (Part 3).

18.9.4.3 ***Effect on Water:***

The pipes shall not have any determinate effect on the composition of the water flowing through them, when tested as per 10.3 of IS 4985.

18.9.4.4 ***Reversion Test:***

When tested by the method prescribed in IS 12235 (Part 5/ Sec 1 and Sec 2), a length of pipe 200 ±20 mm long shall not alter in length by more than 5 per cent.

18.9.4.5 ***Vicat Softening Temperature:***

When tested by the method prescribed in IS 12235 (part 2), the Vicat softening temperature of the specimen shall not be less than 110°C.

18.9.4.6 ***Density:***

When tested in accordance with IS 12235 (Part 14), the density of the pipes shall be between 1450kg/m3 and 1650kg/m3.

18.9.5 Mechanical Properties

18.9.5.1 ***Hydrostatic Characteristics:***

When subject to internal hydrostatic pressure test in accordance with the procedure given

in IS 12235 (part 8/Sec 1), the pipe shall not fail during the prescribed test duration. The temperatures, duration and hydrostatic (hoop) stress for the test shall conform to the requirements given in Table 18.17. The test shall be carried out not earlier than 24 h after the pipes have been manufactured.

TABLE 18.17
Requirements of Pipes for Internal Hydrostatic Pressure Test
(Clause 18.9.5.1)

Sl. No.	*Test*	*Test Temperature Min*	*Test Period*	*Hydrostatic (Hoop) Stress*
		°C	*h*	*MPa*
1	2	3	4	5
i	Acceptance	20	1	43
ii	Type	95	165	5.6
iii	Type	95	1000	4.6
iv	Type	95	8760	3.6 (Test for thermal stability)

Thermal Stability by Hydrostatic Pressure Testing:
When subject to internal hydrostatic pressure test in accordance with the procedure given in IS 2235 (Part 8/Sec 1) and as per requirement given in Table 18.17, Sl. No. (iv), the pipe shall not burst or leak during the prescribed test duration.

Resistance to External Blow at 0°C:
When tested by the method prescribed in IS 4985, with classified striker mass and drop height as given in Table 18.18, the pipe shall have a true impact rate of not more than 10 per cent.

TABLE 18.18
Classified Striker Mass and Drop Height Conditions for the Falling Weight Impact Test
(Clause 18.9.5.3)

Sl. No.	*Nominal Pipe Size*	*Mass of Falling Weight*	*Falling Height*
	mm	kg	mm
1	2	3	4
i	15	0.5±0.5%	300±10
ii	20	0.5±0.5%	400±10
iii	25	0.5±0.5%	500±10
iv	32	0.5±0.5%	600±10
v	40	0.5±0.5%	800±10
vi	50	0.5±0.5%	1000±10
vii	65	0.8±0.5%	1000±10
viii	80	0.8±0.5%	1200±10
ix	100	1.0±0.5%	1600±10
x	150	1.6±0.5%	2000±10

Flattening Test :
When tested by the method prescribed in IS 12235 (part 19), pipe shall show no signs of cracking, splitting and breaking.

Tensile Strength :
When tested by the method prescribed in IS 12235 (Part 19), the tensile strength at yield shall not be less than 50 MPa at 27 ± 2°C.

Sampling and Criteria for Conformity

The sampling procedure and criteria for conformity shall be as given in Annexure F.

Marking

Each pipe shall be clearly and indelibly marked in ink/paint or hot embossed on white base at intervals of not more than 3 m. The marking shall show the following:

(a) Manufacturer's name or trade-mark
(b) Outside diameter,
(c) Class of pipe and pressure rating, and
(d) Bath or lot number

BIS Certification Marking :Each pipe may also be marked with the Standard Mark.

Fittings

The fittings shall be as follows:

(a) Plain CPVC solvent cement fittings from size 15 mm to 160 mm.
(b) Brass threaded fittings.
(c) Valve from size 15 mm to 160 mm
(d) *Brass Threaded Fittings:* All types of one end brass threaded male/female adaptors in various fittings like coupler, socket, elbow, tee are available for transition to other plastic/metal piping and for fixing of CP fittings. Ball, Gate valves in CPVC are available in all dimensions. All
fittings shall carry the following information:
(1) Manufacturer's name/trade mark.
(2) Size of fitting

Piping Installation Support and Spacing

Concealed Piping:

Pipes can be concealed in chases. The pipes and fitting are to be pressure tested prior to concealing the chases. To maintain alignment of CP fittings while joining, all alignment of fittings and pipe shall be done correctly. DO NOT USE NAILS FOR HOLDING OF PIPES IN THE CHASES.

External Installations:

For pipes fixed in the shafts, ducts etc. there should be sufficient space to work on the pipes. Pipes sleeves shall be fixed at a place the pipe is passing through a wall or floor so as to allow freedom for expansion and contraction. Clamping of the pipe is done to support it while allowing the freedom for movement.

All pipes exposed to sunlight shall be painted with a water based acrylic paint emulsion to enhance UV protection. Pipes in trenching shall be laid in accordance to the Good Plumbing practices followed for Metal piping.

Recommended Support Spacing (Distance between Pipe Clamps Horizontal Support)

Pipe Size	*Horizontal Support (In meters)*			
	Temperature			
	23°C	*38°C*	*60°C*	*82°C*
16 mm (1/2")	**1.22**	**1.22**	**1.07**	**0.92**
20 mm (3/4")	**1.53**	**1.37**	**1.22**	**0.92**
25 mm (1/0")	**1.68**	**1.3**	**1.37**	**0.92**
32 mm (1 1/4")	**1.83**	**1.68**	**1.53**	**1.22**
40 mm (1 1/2")	**1.98**	**1.83**	**1.68**	**1.22**
50 mm (2")	**2.29**	**2.14**	**1.98**	**1.22**

Expansion LOOP:

CPVC systems, like all piping materials, expand and contract with changes in temperatures. CPVC pipes shall expand 7.5 cm per 30 m length for a 400C temperature change. Expansion does not vary with Pipe size. Thermal expansion can be generally be accommodated at changes in direction. On a long straight run, an offset or loop based

on the following chart is required.

Nominal Size	*Pipe Length of Run (Meter), Loop length in cms.*				
	6 metre	*12 metre*	*18 metre*	*24 metre*	*30 metre*
15 mm	**43**	**56**	**69**	**79**	**86**
20 mm	**48**	**66**	**81**	**91**	**104**
25 mm	**53**	**74**	**91**	**104**	**117**
32 mm	**58**	**81**	**102**	**117**	**130**
40 mm	**63**	**89**	**109**	**127**	**142**
50 mm	**71**	**102**	**124**	**145**	**63**

Testing

All water supply systems shall be tested to hydrostatic pressure test. The pressure tests are similar to the test pressure used for other plastic/metal pipes. System may be tested in sections and such
section shall be entirely checked on completion of connection to the overhead tank or pumping system or mains.

Measurements

The net length of pipes as laid or fixed shall be measured in running meters correct to a cm for the finished work, which shall include CPVC pipe and fittings including plain and Brass threaded fittings and jointing solvent cement.

Item No.77,78,79,80

Providing & laying P.V.C. Pipes (RIGID) - 6 Kg. ISI marked (OUTER) with special as per site condition with required jointing solution including hydraulic testing as approved & directed by engineer-in-charge.(A) 160 mm dia. (B) 110 mm dia. (C) 75 mm dia. (D) 50 mm dia.

The P.V.C. pipe shall be approved quality and make of as per IS 13592 : 1992 of appropriate class for sewage, rain water and waste water and shall got approved before use by consultant / Engineer-in-Charge. They shall be fixed by means of approved claims or embedded in the structure as instructed by consultant. The rates inclusive all necessary special such as bends YS, TS, Plug, bends, off sets, shoes, cowl etc. all special fittings shall be of standard make of first-class quality and shall in all respect comply with relevant ISS. Nothing extra shall be paid for cutting the pipes for required length or for collar. The overlap of pipes will not be paid. The joints of the pipe shall be filled by properly and it should be watertight.

INSTALLATION

General

(a) All pipe and accessories shall be handled in such manner as to insure delivery to the trench in sound, undamaged condition. Particular care shall be taken not to injure pipe coating, if coating or lining of any type of pipe or fitting is damaged, repair shall be made prior to installation. No other pipe or material shall be placed inside of a pipe or fitting after coating has been applied. Pipe shall be placed inside of a pipe or fitting after coating has been applied. Pipe shall be carried into immediately shall be stored in cool, dark place and out of the sun. installation procedures shall provide for safe conduct of the work, careful removal and disposition of materials, protection of property, which is to remain undisturbed, coordination with other work in progress, and protection of utility services.

(b) Joints shall not be covered until approved. Pipe, pipefitting or appurtenances found defective after installation shall be replaced. Pipe shall be laid true to line and grade to form a close concentric joint with adjoining pipe and to prevent offsets of the flow line. Sections of pipe shall be so laid and fitted together that when complete, the sewer shall have a smooth and uniform invert. As the work progresses, the interior of the sewer shall be cleaned of all dirt and superfluous materials, where cleaning after laying is difficult because

of small pipe size, a suitable swab or drag shall be kept in the pipe and pulled forward past each joint immediately after the jointing has been completed. Pipe cutting where necessary shall be done neatly, without damage to the pipe. Unless otherwise authorized, cutting shall be done by means of an approved type of mechanical cutter.

(c) Each pipe and fitting shall be carefully inspected before and after installation and those found defective shall be rejected. Proper facilities shall be provided for lowering sections of pipe into trenches. Any pipe or fitting that does not allow sufficient space for proper caulking or installation of joint material shall be closed temporarily with wood blocks.

(d) For rain water / waste water pipes shall be covered through masonary wall of brick partition and 20 mm thick sand faced cement plaster.

Tests

(a) Tests of completed piping systems shall be conducted in strict accordance with testing procedures and requirements of ASTM C8282 or AWWA C600 as applicable.

(b) Do not backfill piping (more than minimum required to hold in place for testing) prior to receipt of acceptance from Owner's Representative for results of tests.

(c) Conduct repair and retests when required to UN accepted test results at no cost to Owner.

Measurements

The net length of pipes as laid or fixed shall be measured in running meters correct to a cm for the finished work, which shall include PVC pipe and fittings including plain and Brass threaded fittings and jointing solvent cement.

Item No. 81,82

Providing and fixing in position cowel went to pipes. (C) 75/100/110mm dia.

1.Materials:

The contractor shall have to provide and fixing in position PVC Cowel vent to pipe of 100mm.

2.Workmanship:

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D./ G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

3.Mode of Measurements and Payment:

The rate will be paid for a unit of one No.

Item No. 83

Chini gully trap approved quality supply with fitting and C.I. jali require size with fitting.

The chini gully trap of approved quality, size is to be supplied with fitting and C I Jali of required size as per the requirement. In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

The rate shall be paid for a unit of one number basis.

Item No. 76

Gully Chamber as per 0.30 x 0.30 size & design upto 0.45 m depth with providing and fixing air tight C.I. Frame & Cover including foundation in C.C. 1:3:6, brick masonary in C.M. 1:3, benching, coping in C.C. 1:1:2 & plaster 1:3 inside & outside.

MATERIALS

C.I. Inspection chamber cover of 30cm x 30 cm size shall be best quality. The weight of C.I. cover and frame shall not be less than 12 Kg. The C.I. inspection chamber cover shall be light duty and confirm relevant I.S.

Water shall confirm to M-1. Cement shall confirm M-3. Burnt bricks shall confirm to M-15. Cement mortar to specified proportion shall confirm to M-11. The cast Iron Inspection cover of 30cmx30cm dia with frame shall confirm to I.S. 1726-1966.

WORKMANSHIP

C.I. Inspection Chamber cover shall be fixed as per relevant specifications of Item except that the C.I. cover shall be fixed as and where directed.Themanholes of different types and sizes as specified shall be constructed in sewer line at such places and to such levels and dimension as shown in drawings or as directed.In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

MODE OF MEASUREMENT

The rate shall be paid for a unit of one number basis.

Item No. 85,86

Drainage House connection Brick Masonary Square Inspection Chamber Type as per Design (0.50 x 0.50) foundation P.C.C. in 1:3:6 with brick masonary cement mortar 1:4 and plaster cement mortar 1:3 and copping c.c 1:1:2 with benching c.c 1:2:4 and finishing, curing, etc complete. Including Excavation & Precast Frame cover.
Up to 0.45 mt. depth
From 0.45 mt. to 0.60 mt. depth

MATERIALS

House connection chamber providing and constructing as per the type design in brick masonry inCM 1:4 including C.C. 1:3:6 in foundation and M-150 in benching, inside plastering C.M. 1:3 and outside plastering in C.M.1:3, coping in R.C.C.M-250 on all manholes, providing and fixing manhole frame & covers (but excluding supply of manhole frame & covers) complete as per the stipulation in the type design complete.
(CI Cover Specification as per IS) or Instructed by Engineer-in charge.
Brick masonry chambers for house connections. HC-1 and HC-2.

WORKMANSHIP

The type of Manhole to be constructed shall be decided by the Engineer- in-charge depending upon the technical requirement, actual site condition, likely future expansion, economy etc. and the contractor shall have to carry out the work according to the instructions of the Engineer-in-charge.In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge.

MODE OF MEASUREMENT

The rate shall be paid for a unit of one number basis.

Item No. 87
Supply, fitting, fixing 600 X 600 mm RCC precast frame & cover etc. complete as per specification 5 ton.

1.0 GENERAL SPECIFICATION

R.C.C Precast manhole frame & cover shall be manufacture as per standard typedesign and drawing in C.C. M 200 or higher as directed by Engineer-in-charge.

2.0 MATERIAL

Sand shall be conform M-6 of material specification water shall conform M-1. Cement shall conform M-4. Stone coarse for nominal shall conform M-12. Mild steel bars shall conform M-18.
Thickness of frame shall be as per drawing i.e. 10 cm thick for M.H. and7.5 cm thick for chamber cover. Necessary reinforcement, M.S. angle or flat shall be placed as per design during the concreting work fabrication of R.C.C. M.H.F.C shall be carried out by mechanically vibrating process.

3.0 INSPECTION

Inspection of materials will be carried out at factory site by the third-party Inspecting Agency fixed and authorized by RMC. The supplier on receipt of supply order from RMC shall intimate

inspection agency to carry out inspection as soon as material is ready. Inspection will be carried out normally within one-week time and on receipt of such intimation the inspecting agency will inspect the materials as per the specification and on satisfying itself, will mark the inspection marks on all issue inspection note to supplier and concerned consignee. The supplier has to take care of the following points during inspections.

(1) The manufacturer has to go in for one line stenciling for identifying size and class for proper separation.

(2) The offered material has to be stacked in manageable batches with adequate inspection space like spreading the pieces etc. to permit proper inspection.

(3) During stamping the representative of inspecting agency inspector will be present so as to ensure that only actually cleared material is stenciled.

(4) The inspected material should not be loaded after sunset to avoid in advertent dispatch of wrong material.

4.0 TEST CERTIFICATE:

4.1 The supplier shall always provide manufacturer's test certificate in accordance with every batch/lot of goods so manufactured and supplied.

4.2 The supplier shall also produce in addition to manufacturer's test certificate as mentioned in above, the inspection certificate issued by the authorized person/agency appointed by Engineer for the same purpose.

5.0 MODE OF MEASUREMENT AND PAYMENT

The payment shall be made on number basis. Rates are inclusive of all taxes octroi, entry tax, testing charges including freight, loading, unloading, carting, stacking, insurance charges etc. comp.

Item No. 88

Providing erecting and fixing double coated PVC. (ISI) water tank of 2500 Lit. capacity each with all necessary fittings and connection etc. complete on terrace.

1. Material

Polyethylene used for manufacture of tanks and manhole lids may be high density (HDPE), low density (LDPE) or linear low density (LLDPE) and shall conform to IS 10146. Polyethylene shall be compounded with carbon black so as to make the tank resistant to ultra violet rays from the sun. The percentage of carbon black content in polyethylene shall be 2.5 ± 0.5 percent and it shall be uniformly distributed. The materials used for the manufacture of tank, manhole lid and fittings shall be such that they neither contaminate the water nor impart any taste, colour, odour or toxity to water.

2. Manufacture and Finish

The tanks shall be manufactured by rotational moulding process. Each tank and the manhole lid shall be single piece having arrangement for fixing and locking the manhole lid with the tanks. Excess material at the mould parting line and near the top rim shall be neatly cut and finished. The internal and external surface of the tanks shall be smooth, clean and free from hidden internal defects like air bubbles, pit and metallic or other foreign material inclusion. Capacity of the tank, minimum weight of the empty tank (without manhole lid) and the manufacture brand name shall be embossed on the top surface of the tank near manhole.

3. Shape, Size and Capacity

The tank shall be cylindrical vertical with closed top having a manhole. Diameter and height of the tank of various capacities shall be as per manufacturer's specifications and a clearance of ± 3 percent shall be permitted on these dimensions. Capacity of the tank or up to the bottom of the inlet location whichever is less. Capacity of the tank shall be specified. Extra capacity if any shall be ignored.

4. Weight and Wall Thickness

Minimum weight of the empty tank (exclusive of manhole lid fittings) and the minimum wall thickness of top, bottom and sides shall be specified in Table. Wall thickness shall be checked beyond 150 mm of the edge where the direction the plane of tank surface changes.

5. Installation and Fittings

The flat base of the tank shall be fully supported over its whole bottom area on a durable rigid flat
and level platform sufficiently strong to stand without deflection the weight of the tank when fully filled with water. Depending upon the capacity and location tanks may be suitably anchored as per the directions of the Engineer-in-Charge. For inlet, outlet and other connections fully threaded GI, HDPE or PVC connections with hexagonal check nuts and washers on either side of the tank wall shall be provided. Holes for threaded connections shall be drilled and not punched. Pipes entering of leaving the tank shall be provided with unions and suitably supported on a firm base to avoid damage to the tank walls.

6. Manhole Lid

The lid shall rest evenly and fit over the rim of the manhole so as to prevent the ingress of any foreign matter into the tank. The lid shall be provided with suitable arrangement for locking it with the tank.

The tank and its components shall conform to the local bye-laws for preventions of mosquito menace.

7. Measurements

The water tank shall be measured for its Capacity in liters, limiting dimensions to those specified on plan or as directed.

The payment will be made on Litre basis of the finished work.

Dimensions shall be measured to the nearest cm. and weight of the empty tank shall be recorded to the nearest 100g. Capacity of the tank as defined in table shall be calculated to the nearest litre.

TABLE – 113

S. No.	*Capacity litres*	*Minimum Wall Thickness mm*	*Minimum Weight of Empty Tank kg*
1	200	4.4	7.8
2	300	4.5	9.0
3	400	5.5	15.0
4	500	6.0	18.0
5	700	6.6	23.5
6	1000	7.0	33.0
7	1250	7.0	40.0
8	1500	7.0	47.0
9	1700	7.0	54.0
10	2000	8.2	64.0
11	2500	8.2	81.0
12	3000	8.8	96.0
13	4000	10.4	138.0
14	5000	10.7	191.0
15	6000	10.7	209.0
16	7500	10.7	250.0
17	10000	11.5	363.0
18	15000	11.5	550.0
19	20000	13.2	814.0

Rates

The rate shall include the cost of the tank, manhole lid, carriage and delivery, hoisting, installation, fittings at the place specified.

Item No. 89
Cinder filling in sunk of toilet wash as specified.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

The payment shall be made on Cumt. basis. Rates are inclusive of all taxes(except GST) octroi, entry tax, testing charges including freight, loading, unloading, carting, stacking, insurance charges etc. comp.

FIRE FIGHTING

TECHNICAL SPECIFICATION
FOR FIRE FIGHTING (PROTECTION) SYSTEM

1.0 SCOPE OF WORK

The scope includes fire protection system only, the detection is covered under separate tender ITEM

The detailed scope is described in the TENDER SCH- B

2.0 FIRE EXTINGUISHERS

2.1 GENERAL:

The scope of work under this part of the specification covers supply and installation of internal appliances as per requirements specified in schedule & marked on drawings and instructions of engineer-in-charge.

Makes of all the appliances supplied and installed shall be as per the 'List of Approved Make ' or as approved by LFA and shall be of identical design for the entire premises.
Mounting accessories, indicator boards etc are part of the scope of supply of internal appliances.

2.2 SPECIFICATIONS:

Internal appliances with various fire extinguishing medium shall conform to the following specifications and shall be installed and maintained as per IS: 2190 / NFPA 10
Portable Extinguishers of the following types shall be installed.

1. Dry chemical Powder type
2. CO_2 type
3. Water / Foam type
4. ABC type

2.2.1 **DRY CHEMICAL POWDER TYPE:**

The Dry chemical powder type shall be of 5 Kg. Capacity and shall have the IS mark 2171 or latest Indian standard complete with powder and charged including with fixing bracket, fitted with gunmetal cap, and discharge hose and open grip nozzle.

2.2.2 **CO2 TYPE:**

The Co2 Extinguisher shall be ISI mark, with initial charge with high pressure cylinder, complete with wheel type valve, internal discharge tube, with high pressure discharge hose with horn and suspension brackets. The extinguisher shall have ISI mark of 2878 or latest Indian standard and capacity shall be 4.5 Kg.

2.2.3 ABC (Powder) TYPE : 6 Kg ABC (Powder) type fire extinguisher shall conform to IS 15683 or latest Indian Standard & will be with all accessories & mounting arrangement.

However, type & capacity of fire extinguishers are to be provided according to local CFO requirement

3.0 PIPE WORK

3.1 GENERAL REQUIREMENTS:

3.1.1 All the materials shall be of TAC/LFA approved, best quality conforming to the specifications and subject to the approval of the Client or his representative. If so directed, materials shall be tested in an approved testing laboratory & the contractor shall produce the test certificate in original to the Engineer-in-charge & the entire charges for original as well as repeated tests shall be borne by the Contractor.

3.1.2 Before welding, the pipe faces shall be cleared & then shall be welded conforming to IS : 9595 – 1980. The electrodes used for welding shall comply with IS:814. the laying of welded pipe shall also comply to IS 5822 – 1986. The welding joints shall be tested in accordance to IS:3600, Part 1973.

3.1.3 Pipes and fittings shall be fixed truly vertical, horizontal or in slopes as required in a neat workman like manner.

3.1.4 Pipes shall be fixed in a manner as to provide easy accessibility for repair and maintenance and shall not cause obstruction in shafts, passages etc.

3.1.5 Pipes shall be securely fixed to walls, and ceilings by suitable clamps or supported at every 3 mtr. & at change of direction as required. Only approved type of anchor fastners shall be used for RCC ceiling and walls.

3.1.6 Valve and other appurtenances shall be so located that they are easily accessible for operations, repairs and maintenance.

3.2 PIPING

Pipes of the following types are to be used:

3.2.1 M.S. pipes as per IS: 1239, heavy duty (for pipes of sizes 150 mm N.B. and below) suitably lagged on the outside to prevent soil corrosion. M.S. pipes buried below ground shall be lagged as per IS: 10211.

3.2.2 MS pipe lines up to 150 mm dia. shall have all fittings as per IS: 1239, Part-II (heavy grade) while pipelines above 150 mm dia shall be fabricated from IS: 3589 Gr.320 pipes as applicable or from steel plates.

3.2.3 For MS pipelines up to 50 mm dia screwed jointing shall be adopted, while for pipelines above 50 mm dia welded or flanged construction is to be carried out or as specified in Schedule of quantities.

3.2.4 Hangers and supports shall be capable of carrying the sum of all concurrently acting loads. They shall be designed to provide the required supporting effects and allow pipeline movements as necessary. All guides, anchor, braces, dampener, expansion

joint and structural steel to be attached to the building structure trenches etc. shall be provided. Hangers and components for all piping shall be approved by the Consultant / Client / Architect.

3.2.5 The piping system shall be capable of withstanding 150% of the working pressure including water hammer effects.

3.2.6 Flanged joints shall be used for connections to vessels, equipment, flanged valves and also on suitable straight lengths of pipeline of strategic points (@ at every 15-20 mtr.) to facilitate erection and subsequent maintenance work.

3.2.7 Excavation for pipe line shall be in open trenches. Pipes shall be buried at least one meter below ground level and shall have 230 mm x 230 mm masonry supports at least 300mm high at 3m intervals. Masonry work to have plain cement concrete foundation (1 cement: 4 coarse sand: 8 stone aggregate) of size 380 x 380 x 75 thick resting on firm soil.

3.2.8 Wherever required Contractor shall support all trenches or adjoining structures with adequate supports to prevent land slides.

3.2.9 On completion of testing and painting trenches shall be refilled with excavated earth in 15 cm layers and compacted.

3.2.10 Contractor shall dispose off all surplus earth within the site

3.2.11 Contractor shall provide suitable cement concrete anchor blocks for overcoming pressure trusts in underground / external pipes. Anchor blocks shall be of cement concrete 1:2:4 mix.

4.0 VALVES

4.1 Valves shall be used to start, stop or control flow. Non-return valves shall be provided unidirectional flow.

4.2 Butterfly valve conforming to BS 5155 or as indicated in BOQ will be used for isolation of flow in pipelines. Optionally, gate valves having outside screw rising spindle shall be used and shall be as per IS: 780 / 14846 PN 1.0/1.6, as applicable. For sizes 50mm to 200mm, Butterfly valve shall be as per IS: PN = 1.6 or as specified in Schedule of quantities. Non-return valves shall be swing check/spring operated type. An arrow mark in the direction of flow shall be marked on the body of the valve. These valves shall conform to IS:5312 for swing type or API 596/598 for spring type check valves

4.3 Valves below 50 mm size shall have screwed ends while those of 50 mm and higher sizes shall have flanged connections. Drain lines will have locks for draining.

5.0 INTERNAL HYDRANT:

Internal hydrant shall be provided at each landing or at suitable location consisting of single / twin headed gunmetal landing valve as indicated in BOQ with 63 mm dia. oblique female instantaneous pattern with caps & chains. Outlet and 80 mm inlet (IS: 5290-1969) with separate shut off valve. Landing valves shall be 63 mm dia. oblique female instantaneous pattern with caps and chains. Landing valves shall be of gunmetal and fitted with instantaneous coupling conforming to IS: 901. The valve body, stop valve, check valve, nut, instantaneous female outlet and blank cap shall be of leaded-tin bronze conforming to Grade-II of IS: 318-1962. The valve spindle shall be of brass rod conforming IS: 320 - 1962. The hand wheel shall be mild steel or cast iron washers gaskets shall be of rubber conforming to IS:638 - 1965 or leather conforming to IS:581 : 1969. The coupling shall be fitted with an internal plug secured by chain landing valves shall be installed on hydrant riser at a height of 1.0 to 1.2 meter from the floor level.

Each internal hydrant shall be provided with two nos. 63 mm. Diameter 15 mtr. Long

hose pipe with gunmetal male and female instantaneous type coupling, machined wound with G.I. wire hose of IS 636 type A and couplings to IS:903 with IS certification, gunmetal branch pipe with nozzle conforming to IS:903.

6.0 HOSES

Hoses pipes shall be of fabric reinforced rubber lines as per IS:636 Type II or canvas hose as per IS:4927, with nominal size of 63 mm and lengths of 15 meter or 7.5 meter, as per quantities specified for in schedule or bill of quantity.

All hose pipes shall carry ISI marking on the body of the hose.

The hose shall have instantaneous spring lock-type coupling on ends. The instantaneous coupling shall be as per IS: 901. It shall be fixed to each other by copper rivets and galvanized M.S. wires and leather bands. All coupling shall be interchangeable with each other.

HOSE CABINETS (HOSE BOX)

Each hydrant shall be housed in a Hose cabinet of suitable size. The hydrant cabinet shall hold double / single headed hydrant as specified, 2 hoses and one branch pipe as required. Internal hydrants shall normally fit the size of the niche made for it. The cabinet shall be of minimum 16 SWG M.S. sheet with center opening, double glass front doors (cleat glass of 4mm thickness). The glass shall be firmly fixed by means of steel clips and screw with rubber beading. Hinges shall also be screwed and not welded. The corner members (frame) shall be of 25 x 25 x 3 mm thick angle. The hose box shall be firmly fixed to the wall/support by means of brackets and dash fasteners. The steel work shall have one coat of primer and two coats of red paint. The words "Yard Hydrant", "Hydrant" etc. should be painted in white or red on the glass in 75 mm high letters. The hose box shall be lockable for internal hydrant installation.

7.0 HOSE REEL

The hose reel shall be directly tapped from the riser through a 25 / 32 mm dia. pipe, the drum and the reel being firmly held against the wall by use of dash fasteners. The hose reel shall be swinging type (180degrees) and the entire drum, reel etc. shall be as per IS: 3876 and IS: 884. The rubber tubing shall be of best quality and the nozzle shall be shut off type.

8.0 BRANCH PIPES

Branch pipe shall be of either gun metal or Aluminum and should conform to IS: 903. One end of the branch pipe will receive the coupling while the other end shall have a nozzle screwed to it. It shall bear ISI marking.

10.0 YARD / EXTERNAL HYDRANT

Yard or External Hydrants shall be as per IS: 908 and the valve as per IS:5290. The hydrant shall consist of stand post assembly and a masonry base 200 mm X 200 mm X 200 cm high and shall be made at the point where it comes out of the soil. The valve shall complete with hand wheel, quick coupling connection spring and blank cap. The hydrant shall be laid on 150 dia. or as mentioned in BOQ.

Yard or External hydrant shall be controlled by a cast iron sluice valve. Hydrant shall have oblique female instantaneous pattern 63 mm diameter outlets with caps and chains. The hydrant shall be of gunmetal and flange inlet and single outlet conforming to IS: 5290, a duck foot bends and flanged riser of required height to bring the hydrant to level above ground. The valve body, stop valve, check valve, nut, instantaneous female outlet and blank cap shall be of leaded-tin bronze

conforming to Grade-II of IS:318-1962. The valve spindle shall be of brass rod conforming IS:320 - 1962. The hand wheel shall be mild steel or cast iron washers gaskets shall be of rubber conforming to IS:638 - 1965 or leather conforming to IS:581 : 1969.

Each external hydrant shall be provided with two nos. 63 mm. Diameter 15 mtr. Long hose pipe with gunmetal male and female instantaneous type coupling, machined wound with G.I. wire hose of IS 636 type A and couplings to IS:903 with IS certification, gunmetal branch pipe with 20 mm nozzle conforming to IS:903.

11.0 VALVE CHAMBERS

A valve chamber shall be brick masonry chamber in cement mortar 1:5 (1 cement: 5 coarse sand) on cement concrete foundation 150 mm thick foundation 1:5:10 mix (1 cement: 5 fine sand: 10 graded stone aggregate 40 mm nominal size), 15 mm thick cement plaster inside and outside finished with a floating coat of neat cement inside with cast iron surface box approved by fire brigade including excavation, back filling, complete. The wall shall be 230 mm thick with heavy duty ISI marked C.I. manhole covers.

12.0 FIRE BRIGADE INLET CONNECTION

A fire brigade inlet connection with a non-return valve shall be provided to facilitate the fire brigade to pump water into the installation by the use of their own equipment. Four way or 150 mm dia. connection to the system shall comprise of four instantaneous pattern 63 mm dia. male inlets shall be with caps and chains complete with 150 mm dia. sluice valves, non-return valve housed in a M.S. cabinet with glass fronted door. The cabinet shall be suitable for recess mounting.

Two way or 100 mm fire brigade inlet connection to the system shall comprise of two instantaneous pattern 63 mm dia. male inlets shall be with caps and chains complete with 100 mm dia. sluice valve, non-return valve housed in a M.S. cabinet with glass fronted door. The cabinet shall be suitable for recess mounting.

12.0 SYSTEM DRAINAGE

The systems shall be provided with suitable drainage arrangements with MS piping of 50 mm dia. complete with all accessories, and provided with drain valve.

13.0 HYDRANT SYSTEM

14.1 The hydrant system shall comprise of AC motor driven pump sets. Diesel pump, Jockey pump etc. with all required accessories including valves, appurtenances, instrumentation and controls etc. complete in all respects. The system shall cover the entire area from independent pipe work from the fire water pump set. The hydrant work shall remain pressurized through the proposed Jockey pump taking care of any leakages in the system pipelines and valve glands. All pumps / motors / engines to be of makes approved by local Fire Authority.

14.2 The hydrant system shall be kept charged by pressurized water at approximately 7.5 Kg/cm2 at all times. In the event of fire when any of the hydrant valves in the network is opened, the resultant fall in header pressure should enable starting the Electric Motor driven fire water pumping set through pressure switches automatically. One Diesel Engine / DG set driven pump shall be a stand-by pump serving hydrant system & sprinkler both. In case of failure of electricity or failure of Elec. Pump to start on demand, the stand-by DG set operated pump shall automatically take over. Apart from the automatic starting of the pump sets, provision shall be kept for manual starting also. However shifting down of the pump sets shall be manual.

14.3 The hydrant system in the yard shall be furnished with external hydrants

consisting of landing valves (positioned approx. one meter above ground level) fitted M.S. (Heavy) flanged single headed stand pipes installed on underground hydrant headers distributed 45 M apart approximately or as marked on the plan.
The entire system including all pumps, motors, diesel pump set and panels shall be of approved make by TAC / Local Fire Authority.

15.0 SPECIFICATION FOR PUMPS AND ANCILLARY EQUIPMENT

15.1 SCOPE OF WORK

15.1.1 Work under this section shall consist of furnishing all labour, materials, equipment and appliances necessary and required to completely install electrically operated pumps for fire hydrant installations as required by the drawings and specified hereinafter or given in the schedule of quantities.

15.1.2 Without restricting to generality of the foregoing the pumps and the ancillary equipment and shall include the following:

a) Electrically operated pumps having twin outlets with motors base plate and accessories.
b) Pump suction and delivery headers, valves, air vessel and connections.
c) Pressure gauges / pressure switch.
d) Only single point 3 phase supply will be made available to the Contractor. From there, all provision viz. Electrical switchboard, wiring, cabling, cable tray, control panel, earthing, etc. shall be made.

15.1.3 GENERAL REQUIREMENT

a) Pumps shall be installed true to level on suitable concrete foundations. Base plate shall be firmly fixed by foundation bolts properly grouted in concrete foundations.
b) Pumps and motors shall be truly aligned with suitable instruments.
c) The pump shall have single suction & twin discharge connection
d) All pump connections shall be standard flanged type with appropriate number of bolts.

e) Manufacturer instructions regarding installation connections and commissioning shall be followed with respect to all pumps, switchgear and accessories.

15.1.4 FIRE AND JOCKEY PUMPS

a) The main Fire hydrant & Sprinkler pumps shall be End Suction Back Pull Out type while Jockey pumps shall be of Centrifugal Mono block Pump type having following specifications.
b) Shut off head should not exceed 140% of rated head. Pump shall not develop less than 65% of rated head at 150% of rated capacity.

MATERIALS OF CONSTRUCTION

Part	**Material**
Casing	Cast Iron
Impeller	Bronze IS:318, Gr. LTB 2
Casing Wearing	SS
Shaft	AISI – 410 / Stainless Steel
Shaft Sleeve	S.S. 316
Stuffing Box	Gland Packed

c) Pumps shall be provided with pressure gauge with isolation cock on the delivery

side.

d) In case of motor driven pump the motor rating should be adequate to drive the motor rating should be adequate to drive the pump at 150% of rated discharge.
e) The pump and its prime mover (Electric motor or Diesel Engine) shall comply with all the equipment of the Rules of the Traffic Advisory Committee.
f) All pumps shall have positive suction & shall be provided with suction strainer of SS & CI bell mouth. In case of negative suction suitable priming arrangement shall be provided.
g) All the pumps shall have single suction & twin discharge connections i.e. low pressure& high pressure to serve designated lower & higher floors respectively as per drawing.

A) JOCKEY PUMP

Starting and stopping of Jockey Pump set shall be automatic at predetermined levels through pressure switch. However, arrangements for manual start and stop of the pump shall also be made. Jockey Pump shall take care of small leakages in the piping system and pumps cushion tanks. Jockey pump shall have also single suction & twin discharge connections.

B) ELECTRIC DRIVEN

Electrically driven pumps shall be provided with totally enclosed fan cooled, foot mounted, squirrel cage induction motors suitable for fire pumps with IP-55 enclosure.

The motors should be rated not to draw more than 4.5 times the starting current.
Motors shall be at least equivalent to the horse power required to drive the pump at 150% of its rates discharge.
The motors shall be wound for class-F insulation and windings shall be vacuum impregnated with heat and moisture resisting varnish, glass fiber insulated.

C) DIESEL ENGINE

a) Diesel engine shall have suitable no. of cylinders with individual heat assemblies. The engine shall be water cooled and shall include heat exchanger and connecting piping strainer, isolating pressure reducing valves, bye-pass line, exhaust pipe, silencer, day tank for fuel all interconnected piping etc., complete in all respects.
b) Engine shall be direct injection type with low noise and exhaust omission levels,
c) The speed of engine shall match the pump speed for direct drive.
d) The engine shall be capable of being started without the use of the wicks, cartridge heater plugs or either at engine room temperature of 4°C and shall take full load within 15 seconds from the receipt of the signal to start.
e) The engine shall effectively operate at 46°C ambient temperature at 150 meter above mean sea level.
f) Engine shall be suitable for running on high speed diesel oil.
g) The system shall be provided with a control panel with push button starting arrangement also wired to operate the engine on differential pressure gauge.
h) The entire system shall be mounted on a common structural base plate with anti-vibration mounting, Dunlop make, and flexible connections on the suction and delivery piping.
i) Contractor provide one fully mounted and supported Day Oil Tank fabricated form 6mm thick MS sheet electrically welded for 8 hours working load and having suitable capacity of oil. Provide level indicators – low level and full level in the

Day Oil Tank on the control panel through float switches and an breather. Day Oil Tank shall also be provided with filling connection (Threaded) with cap, gauge glass indication and cocks, drain cock, inspection / cleaning cover with gasket and nuts / bolts. MS dyke to hold 150% of the Day Tank capacity to be built around the Day Tank.

j) Contractor to provide one exhaust pipe with suitable muffler (residential type) to discharge the engine gasses to outside in open air as per site conditions (Contractor to check the site).

k) Contractor to provide all accessories, fittings and fixtures necessary and required for a complete operating engine set. The exhaust pipe shall be taken outside the building with minimum number of bends (approx. length 30 Meters) and shall be duly heat insulated with 50mm thick glass wool covered with 24 gauge aluminum cladding.

l) Contractor shall indicate special requirements, if any, for the ventilation of the Pump Room.

Noise & Vibration level of the pump driven by motor/engine shall be within the acceptable limits of ISO 2372, IS 11727.

15.1.5 BOOSTER PUMP (Not Applicable)

A booster pump shall be provided at terrace to pressurize the wet riser system. The pump shall be centrifugal end suction / mono block type.

15.1.6 BASE PLATE

Pumps and motors shall be mounted on a common structural base plate and installed as per manufacturer's instructions.

16.0 CUBICLE TYPE SWITCH BOARD/L.T. PANEL

Cubicle type switchboards and components shall conform to the requirements of the latest revision including amendments of the following codes and standards.

IS: 8623 Specification for factory built assemblies of switchgear and control gear for voltage up to and including 1000V AC / 1200V DC.

IS: 4237 General requirements for switch-gear and control-gear for voltage not exceeding 1000-V.

IS: 2147 Degree of protection provided by enclosure for low voltage switch-gear and control-gear.

IS: 1018 Switch-gear and control-gear selection/installation and maintenance.

IS: 6005 Code of Practice for phosphating of iron and steel.

IS: 13947-1993/ IEC 947 - 1989 Air circuit breaker / moulded case circuit breaker.

IS: 1248 Direct acting indicating analogue electrical measuring instruments and testing accessories.

IS: 2705 Current transformers for metering and protection with classification

Part - I, burden ad insulation. II & III 1964

17.0 AIR CUSHION TANK

Every wet riser shall be provided with an air cushion tank at its top most point. The air cushion tank shall be provided with an automatic air release cock, 20 mm dia. drain pipe, drain valve and shut off valve.

18.0 PRESSURE GAUGE

All pressure gauges shall be dial type with Borden tube element of SS 316. The dial size shall be of 150 mm diameter and scale division shall be in metric units marked clearly in black on a white dial. The range of pressure gauge shall be 0-10 kg.sq.cm or as specified in BOQ. The pressure gauges shall be complete with isolation cock, siphon tubing, etc.

19.0 PRESSURE SWITCHES

19.1 The pressure switch shall be industrial type single pole double throw electric pressure switch designed for starting or stopping of equipment when the pressure in the system drops or exceeds pre set limits. It shall comprise of a single pole change over switch, below element assembly and differential spindle.

19.2 All pressure switches shall have ¼" BSP (F) inlet connection and screwed cable entry for fixing cable gland. All control cabling shall be provided.

20.0 SPRINKLER HEADS

Sprinkler heads shall be provided at approximate spacing so as to cover 12 sq.mtr. per sprinkler head in case of ordinary hazard for basement having car parking area. The spacing shall however be in uniformity with the drawings and properly coordinated with electrical fixtures, ventilation ducts and grilles and other services along the ceiling. Sprinkler heads shall be gunmetal quartz bulb type with a temperature rating of 68°C. Sprinkler heads shall be of upright conventional type with fusible link for operation. Sprinkler head shall be approved by the under writers Laboratories (U.L.) or Fire Officers Committee (FOC). The finish shall be as specified in bill of quantities.

Contractor shall install cabinet (fabricated from 16 Gauge M. S. sheets witch lockable glass shutters. Shelves for keeping spare sprinklers and spanner at locations approved by the Engineer-in-Charge and given in the schedule of quantities. The contractor shall also give required tools for removing and fixing of different types of sprinkler free of cost as directed by Engineer-in- Charge.

21.0 SPRINKLER SYSTEM

21.1 GENERAL:

To supply, install, testing and commissioning of sprinkler system as per drawing and Sprinkler heads spacing shall be in conformity with the drawings and properly coordinated in reflected ceiling with electrical fixtures, ventilation ducts and grills and other services along the ceiling.

Sprinkler heads shall be brass / gunmetal with quartz bulb with temperature rating of 68 degree Celsius. Sprinkler heads shall be of type and quality approved by the local fire brigade authority. The inlet shall be screwed. Sprinkler heads shall be pendent, recessed or special side type. All sprinklers shall conform to the specifications given by TAC, IS, NFPA, FOC, UL & FM.

21.2 UPRIGHT TYPE SPRINKLER HEAD

Sprinkler heads shall be quartzite bulb type with bulb, valve assembly, yoke and the deflector. The sprinkler shall be of approved make and type with 15 mm nominal diameter outlets.

The bulb shall be made of corrosion free material strong enough to withstand any water pressure likely to occur in the system. The bulb shall be shatter when the temperature of the surrounding air reaches at 68 c. Upright sprinklers shall be considered for basement.

The nominal bore shall 15 mm diameter and colour of liquid shall be as per temperature rating.

21.3 FLOW SWITCH

Flow switch shall have a paddle made up of flexible material of the width to fit within the pipe bore. The terminal box shall be mounted over the paddle / pipe through a connecting socket. The switch shall be potential free in either NO or NC position as required. The switch shall be able to trip and make/ break contact on the operation of a single sprinkler head. The terminal box shall have connections for wiring to the Fire alarm panel. The seat shall be of stainless steel. The flow switch shall have IP: 55 protections.

The flow switch shall work at a minimum flow rate of 100 LPM. Further, it shall have a retard to compensate for line leakage or intermittent flows.

21.4 BUTTERFLY VALVE

The Butterfly valve shall be suitable for waterworks and tested to minimum of 16 kg/sq cm Pressure. The valves shall fulfill the requirements of BIS(Indian Standard) BS: 5155 or AWWA C 504, API 609 and MSS-SP-67.
The body shall be of cast iron to IS: 210 in circular shape and of high strength to take the minimum water pressure of 10 kg/sq cm. The disc shall be heavy-duty cast iron with anti-Corrosive epoxy or nickel coating.
The valve seat shall be high grade elastomer or nitrile rubber. The valve in closed position shall have complete contact between the seat and the disc throughout the perimeter. The elastomer rubber shall have a long life and shall not give away on continuous applied water pressure. The shaft shall be of ENB grade carbon steel.
The valve shall be fitted between two flanges on either side of pipe flanges. The valve edge rubber shall be projected outside such that they are wedged within the pipe flanges to prevent leakages.
The valve shall be supplied with manual gear operated opening/ closing system by lever.

21.5 DRAIN VALVE

50 MM / or as specified in SOQ diameter MS pipe conforming to I.S.:1239 (heavy grade) with 50 mm diameter / or as specified in SOQ gunmetal full way valve shall be provided for drainage of any water in the system in low pockets.

22.0 TESTING OF THE HYDRANT SYSTEM:

22.1 All air shall be trapped from the pipeline through hydrants & air valves. Each section of the pipe shall be slowly filled with the water & allow to stand the water for 2 hours minimum with the ends closed. No joints / connection shall be leaked within this duration. The hydraulic test pressure shall be 1.5 times the design pressure.
22.2 Flushing of underground connections: Underground mains and lead-in connections to system risers shall be flushed before connections made to piping in order remove foreign materials which may have entered the underground during the course of installation. For hydrant system the flushing operation shall be continued until water is clear.
22.3 Underground mains and lead-in connection shall be flushed at a flow rate of not less than 480 ltrs. per minute.
22.4 Provision shall be made for the disposal of water issuing from test outlets to avoid property damage.

22.5 Acceptance Test

At the time of taking over, the hydrant system shall fulfill the following acceptance tests:-

22.5.1 Starting up of the pressure suction (Jockey Pump) : The pressure switch shall be set at 3.5 kg/cm^2 at the lower limit and 7.5 kg/cm^2 at the upper limit. The system drain shall be opened to cause a drop in the pressure. The Jockey Pump shall start as soon as the pressure gauge needle falls down to 3.5 kg. The Jockey pump shall also stop automatically when the system has been pressurized again up to 7.5kg/cm^2.

22.5.2 The main electrical pump shall be set to start at 3.5 kg/cm^2. An external hydrant valve using a single length of hose and branch pipe shall be fully opened to cause a drop of pressure in the system. At first, the jockey pump shall start when the pressure drops from 7 kg. Further, drop in the pressure from 3.5 kg should be allowed to test automatic start-up of the electrical pump. The electrical pump shall continue to run at least for 5 minutes and register rise in the pressure up to 3.5 kg the Jockey Pump shall be automatically start at this. The electrical pump shall be stopped manually by pressuring the stop button.

22.5.3 After having the system got fully charged at 7.5 kg/cm^2 the external hydrant valve using hose and branch pipe at (ii) above shall be opened. When the pressure has dropped from 3.5 kg/cm^2, the electric main pump shall come into operation automatically. After the main pump has run for 5 minutes, the power supply in the pump house shall be switched off. The diesel pump shall automatically come into operation immediately.

22.5.4 All these tests mentioned above shall be repeated after one hour interval. The result of all the tests shall be identical again. After the system has satisfactorily withstood the above tests, it can be taken over from the contractor.

23.0 START-UP/SYSTEM TESTING

It will be the responsibility of the tenderer to cause interim/stage inspection by the Local Fire Authority LFA/ Chief Fire Officer C.F.O during execution of the work as and when so called for by the Employer / Consultant and shall carry out any rectification / modification as may be suggested by the Local Fire Authority (LFA), Chief Fire Officer (CFO).

Soon after the work is completed, the contractor shall inform the LFA/CFO in writing with a copy to the Consultant/Employer for getting the complete system including all sub system and instrumentation, control etc. thoroughly inspected and tested for satisfactory performance. After satisfactory completion of tests of the systems by the LFA / CFO, the contractor shall be required to submit as built drawings to the Consultant / OWNER which have been so approved.

24.0 COMMISSIONING OF SYSTEM

24.1 Pressurized the fire hydrant system by running the main fire pump and after at required pressure shut off the pump.

24.2 Open bye-pass valve and allow the pressure to drop in the system. Check that the jockey pumps cuts-in and cuts-out at the pre-set pressure. If necessary adjust the pressure switch for the jockey pump. Close bye-pass valve.

24.3 Open bye-pass valve and allow the water to flow into the fire water tank in order to avoid wastage of water. The main fire pump should cut-in at the preset pressure and should not cut-out automatically on reaching the normal line pressure. The main fire pump should stop only by manual push button. However, the jockey pump should cut out as soon as the main pump starts.

24.4 Switch off the main fire pump and test check the diesel engine driven pump in the same manner as the electrically driven pump.
24.5 When the fire pumps have been checked for satisfactory working on automatic controls, open fire hydrant simultaneously and allow the hose pipe to discharge water into the fire tank to avoid wastage. The electrically driven pump should run continuously for eight hours so that its performance can be checked.
24.6 Diesel engine / DG set driven pump should also be checked in the same manner as given in clause above by running for 8 hours.
24.7 Check each landing valve, male and female couplings and branch pipes for compatibility with each other. Any fitting which is found to be incompatible and does not fit into the other properly, shall be replaced by the Contractor. Landing valves shall also be checked by opening and closing under pressure.

25.0 HANDING OVER

25.1 All commissioning and testing shall be done by the Contractor to the complete satisfaction of the Engineer-in-Charge / Consultants, and the job handed over to the Client.
Contractor shall also hand over to the Client all maintenance and operation manuals and all items as per the terms of the contract.

Item No. 01
Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump) 450 lpm at 35 m Head

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 02
Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required:
80mm dia

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 03
Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required
80mm dia

Item No. 04
Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required:
80mm dia

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The

work shall be carried out as per item description.

1.0 MATERIAL
1.0 C.I. Sluice valve
1.1. The gun metal Sluice valve shall be of approved quality. These shall be of gun metal fitted with Sluice and shall be of gate valve opening full way and of the size specified. These shall conform to I.S. 778-1971.
2.0. WORKMANSHIP fixing & Jointing
2.1. When the Sluice valve is to be Fitted, the ends shall be carefully filed out so that no obstruction to bore in offered. The Sluice valve shall be fitted with pipes carefully in such a manner as will not result in slackness of joints when the two pieces are screwed together
2.2 In jointing the Sluice valve the inside of the socket and the screwed end of the Sluice valve shall be oiled and smeared with the white or red lead and wrapping around with a few turns of fine-spun yarn round the screwed end of the Sluice valve. The end shall then be tightly screwed in the socket, Tees etc with a pipe wrench Care shall be taken that all items are free from dust, dirt and rust during fixing Burr from the joints shall be removed after screwing After laying the open ends of the Sluice valve shall be temporarily plugged to prevent excess of water soil or any other foreign matter.
2.3. Any threads exposed after jointing shall be painted or in the case of underground piping thickly coated with approved anti corrosive paint to prevent corrosion
TESTING OF JOINTS
After fitting, the Sluice valve shall be inspected under working conditions of pressure and flow. Any joints found liken shall be redone, and all leaking Sluice valve shall be removed and replaced without extra cost.
The Sluice valve after they are fitted shall be tested to hydraulic pressure as per required. The Sluice valve shall be slowly and carefully charged with water allowing all air to escape and avoiding all shock and water hammer. The draw off takes and stop cock shall then be closed and specified hydraulic pressure shall be applied gradually. The Sluice valve shall be tested in sections as the work laying proceeds, veeping the joints exposed for inspection during the testing.
3.0 MODE OF MEASUREMENT &PAYMENT:
3.1. The unit rate of Sluice valve shall include the cost of all materials, tools and plant required for fitting, the same to specified position as per drawings, and as directed by Engineer-in-Charge finishing structure, etc, and all other incidental expenses for producing Sluice valve work to complete the structure or its components as shown on the drawings, and as directed by Engineer-in-Charge and according to these specifications. They shall also include the cost of making, fixing and removing of all scaffolding and forms required for the work.
The rate of Sluice valve shall include the cost of all labour, materials, G.I. fittings as required, tools and plant scaffolding and all incidental expenses as described herein above for fixing the sluice valve.
3.2. The Sluice valve shall be measured for its Number, limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one Number.
3.3. The payment will be made on number basis of the finished work.

Item No. 05
Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.
In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 06
Providing and Fixing H GURU Analog Air Pressure Gauge, for Industrial, Model Name/Number: 3psssw2 et. Complete as directed by engineer in-charge.
In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 07
Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle. Drum and brackets for fixing the equipmets on wall. Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket. 17.1 30 m

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 08
Supply, Installing, Testing & Commissioning of 25 mm S.S. 304 grade Ball valve of approved made for Entire System with nipple fitting material, flange, gasket etc. necessary complete. (Each Landing in Hose Reel).

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 09
M.S. STEEL STRUCTURE: Providing, Supplying, fabricating & painting of steel structure made out of TATA / Asian / Appolo or approved make for RHS/SHS, M.S. Tubular hollow sections,column, bracing, truss, purlin, rafter, cleat, bracings members, base plate, anchor bolts, stiffner plate etc. are as per drawings. Anchor bolts should be non-corrosive paint of approved made, make & as per Drawing. Other steel & metal members should be painting with priming coat and two coats with enamel paint of approved made & shade, brushing or spraying, interior to give an even shade including cleaning the surface an even shade and all dirt, dust and other foreign matter etc. including all labour cost, tools & tackales, welding rods & welding machines, hire charges of crane, erection charges up to all height at site as per Drawing and also loading, unloading, transportation, all taxes, FoR at work site etc. completed as directed. Payment should be made on the basis of Kg. (as per certified weigh slip of GSRTC & as per mode of measurement specified in IS) of actual erection material at site only. Wastage should not be measured / weighed or paid. MS frame structure for covering pump and panel equipment's on terrace.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 10
Supplying & erecting approved make 3 phase motor control cubical panel (Star - Delta) made from16 G. CRCA sheet duly painted with epoxy powder painted inside and outside with hinged doors and locking arrangement, consisting of suitable size of ON- OFF isolator (AC - 3/23 duty) main fuses, single phasing preventer cum water level. Guard (Complete unit), Toggle switch to bypass Single phase preventer cum WLG, indicating lamps for R- Y- B phases, over load relay, Automatic water level controller, Ammeter & Voltmeter each with two-way selector switch incoming wires duly socket Crimped, Panel to be erected on angle iron frame grouted on wall as directed. Star Delta & main contractor, overload relay, thermal / Electronic Star delta cutoff timer, start - stop push buttons. The isolator overload relay & contactors of L& T, Siemens or Cuttler Hamer make only. Panel to be erected on angle iron frame ground on wall.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 11
Supplying & erecting carbon dioxide (CO2) fire extinguisher user of following capacity with necessary clamps made from 50 x 6 mm M.S. Flat with nut & bolts grouted in wall complete. [A] For 4.5 Kg Capacity.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 12
Providing and Fixing A B C Dry Powder Type Mild Steel ABC Dry Powder Fire Extinguisher, Capacity: 6 Kg etc. complete as directed by engineer in-charge.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 13
Supplying & erecting XLPE(IS:7098) (I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (F) 3 core 4 Sq. mm

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Item No. 14
Supply, Installing, Testing & Commissioning of Fire Hotter, manual call point and ON - OFF switch with PVC pipe, wire and panel for hotter and call point etc. complete.

In general, the work shall be carried out as per the standard specifications of P.W.D. / C.P.W.D. / G.W.S.S.B. relevant drawings and as per the instructions of Engineer-in-Charge. The work shall be carried out as per item description.

Addl/Asst. Engineer R.M.C.	**Dy.Ex. Engineer R.M.C.**	**ADDL. CITY ENGINEER R.M.C.**

Signature of Contractor with Seal

Approved Make List

LIST OF APPROVED MAKES (FOR CIVIL WORKS)		
Sr. No.	**Item**	**Approved Make**
1.	Ready Mix Concrete	Nuvoco, UltraTech
2.	Ordinary Portland Cement 53 Grade	Ambuja, Ultratech, Sanghi, ACC, Hathi, Birla,Tata.
3.	White Cement	J.K. White, Birla White.
4.	Reinforcement Bar	TMT Bars Fe-500 / 500 D conforming to relevant IS Code Vizag, Tata, SAIL, Electrotherm, ASR Thermax, Gallant, Aditya.
5.	Structural Steel	SAIL, TISCO, Vizag, Jindal, Essar,TATA.
6.	Teak Wood	Bulsar, C.P. Teak (2nd Class specified), Burma Teak.
7.	Hard Wood	Redmerranti.
8.	Kota Stone / Marble Stone	As per approved sample by Owner / Client / Architect
9.	Ceramic Tiles (White or Colored Anti-Skid)	H & R Johnson,Bell Ceramics, Somani, Kajaria, Nitco, Cera, Johnson, Asian, Euro, Varmora, Lexus, Simpolo.
10.	Vitrified Tiles (White, Colored, Anti-Skid)	H & R Johnson,Bell Ceramics, Somani, Kajaria, Nitco, Cera, Johnson, Asian, Euro, Varmora, Lexus, Simpolo.
11.	Chequered Cement Tiles / Decorative Tiles	Nitco, NTC, Kajaria, Vyara, Lexus, Varmora, as per ISI Mark.
12.	White / Coloured Glazed Tiles	H & R Johnson,Bell Ceramics, Somani, Kajaria, Nitco, Cera, Johnson, Asian, Euro, Varmora, Lexus, Simpolo.
13.	Interlocking paver blocks	As per IS and approved by Engineer-In-charge.
14.	Plywood Products Commercial Block Board Commercial Ply Teak Ply	Greenply, Novopan, Sitapur Plywood, Kitply, Century, Anchor, Duro, National wood craft, Alpro, Neolux Laminated, Formica, Decoboard, Sunmica Board, Bhutan, Western India plywood (WIP), Laxmi.
15.	Laminates / Decorative laminates	Decolam, Greenlam Merinolam Formica, National laminate, Neoluxe, Decolite, Delta, Hommica, Royal
16.	Pre laminated board	Bhutan, Novopan, Eco board, Bakelite Hylem Nepal board, Green board, Royal.
17.	Impregnated Fibre Board	Shalitex by Shalimar Tar Product.
18.	Teak Veneer	Anchor, Kitply, Greenply, Century, Duro, Formica.
19.	Flush Doors	Mysoboard, Sudarshan, Baroda, Goyal, Industrial Corp, Wood craft, Alpro, Genda-Northen Doors, Greenply, Kitply, Bhutan, Century, Duro.
20.	FRP Doors	Fibrevent, Techno skills
21.	Aluminum Section	Indal, Hindal, Jindal, Banco, Gujarat Extrusion, Hindalco, Domal.
22.	All Aluminum Hardware, Fittings	Everite, Garnish, Arches, Kausal, Nulite Alif, Shalimar (Bombay) Singla, Opel, Bolt, Arhish.
23.	Stainless Steel Hardware Fittings	Kich, Dorset, Magnum.
24.	Glass / Float / Sheet	Saint Gobain, Modi, Hindustan Pilkington, Hindustan, Tata, Asahi, Triveni, Shree Vallabh.
25.	Locks	Godrej, Harrison, Plaza, Golden, Doorset, Europe.
26.	Rolling Shutters	As approved by authority.
27.	Silicon Sealant	Structure Proofing Co., Pidilite, GE Silicon, Tuffseal, Cemceal.

LIST OF APPROVED MAKES (FOR CIVIL WORKS)		
Sr. No.	**Item**	**Approved Make**
28.	Synthetic Enamel Paints / Oil bound washable distemper	Shalimar, Goodlass Nerolac, Berger, Johnson & Nicholson, Asian Paint, Dulux, Global Colours.
29.	Water Proof Acrylic Paints / Weather proof Acrylic Paints	Asian, Nerolac, Berger, Dulux, Global Colours.
30.	Plastic Emulsion paint	Asian, Nerolac, Berger, Dulux, Global Colours.
31.	Water Proofing Compound	CICO, Fosroc,Bostik Findley, GE silicon, Pidilite, MC-Bauchmie, Sika, Cemseal, Wecker, Asian, JK, Dr. Fixit, Pidilite, Fairmate.
32.	Weather Sealant / Silicon sealant / Polyisobutylene sealant	Fosroc, Pidilite, MC-Bauchmie, Wecker, Dow corning 789.
33.	Hardeners	Ironite, Ferrok, Hardonate.
34.	Wire Mesh	145 GSM Glass Fiber Net.
35.	Anti-Termite Treatment	Thyodin by Hoechest, Lyntric by Bayer India, Durmet by Cynamid India, Nocil Pyramid, PCI.
36.	M.S. Tubes	TATA, SAIL, Vizag, Jindal, Asian.
37.	Polypropylene Fiber	Fiber mesh, Duracem, Fosroc.
38.	Welding Rod	Advani, Philips, Sunarc, Eshab.
39.	Construction Chemicals	Fosroc, MC-Bauchmie, Sika, Pidilite, Cemseal, Maperi, L&T, Fairmate, Asian, JK, Yaska.
40.	AAC Blocks	BILT, Siporex, Aerocon, Ecogreen, Accurate, Wonder Bloc, ISI Mark.
41.	Tile adhesives	Laticrete, BAL, Fosroc, Mapei, MC-Bauchemie, JK, Asian, Fairmate.
42.	PVC Door & Frames	Rajshree, Giza or as per approved

LIST OF APPROVED MAKES (FOR WATER SUPPLY & SANITARY WORKS)		
Sr. No.	**Item**	**Approved Make**
1.	Cast Iron Pipes and Fittings (LA Class)	TISCO, ISCO, KESHO SPUN Co., E.L.C., NECO, ET, Jindal.
2.	R.C.C. Pipes	Indian Hume Pipe Co., Alcock Cement Products, OM (Morbi), Patel Spun (Surat), Gokul, Cement pipe, Orbit.
3.	G.I. Pipes	Jindal, Prakash, Surya, Gujarat Steel Tube, Tata, Bharat Steel Tube, Bombay, Zenith, Unik.
4.	G.I. Fittings	R-Brand, DRP-M, Zoloto, Unik.
5.	Gun Metal Valves	Leader Engineering Works, Jalandhar, Crown, Prince, Annapurna Metal Work, Sant brand, GG Bombay Metal & Alloys Mfg. Co. Private Ltd., Atco, B.R. Enterprise, Zoloto, GM, Arohi.
6.	Brass fittings	Leader Engineering Works, L&K Mathura, Crown, Prince, Annapurna Metal Works, Kingstone Ark, Williams, Aquaplus, Nova, Triple, Ranutrol Hansa.

LIST OF APPROVED MAKES (FOR WATER SUPPLY & SANITARY WORKS)		
Sr. No.	**Item**	**Approved Make**
7.	C.P. Fittings	Essco, NU-Lite, Navbharat, Crown, Prince, Jaquar, Plumber, Cera, Hindware.
8.	W.C. Pan / Wash basin / Urinals	Cera, E.I.D. Parry, Hindware, Neycer, Johnson, Bell, Simpolo, Varmora.
9.	Flushing Cistern – Cast iron	Overhead–Nomos, ELCO, A-I AUTOMATIC-EID Parry, Hindustan Sanitary ware, Calcutta, Nelson flush valve, SRIF (Agara), Parrys – Madras, Hindware.
10.	Flushing Cistern Exposed Wall Mounted – PVC	Cera, Hindware, Johnson, Bell, Simpolo, Varmora.
11.	E.W.C. Seats (Solid)	E.I.D. Parry, Hindware, CERA, Neycer, Johnson, Bell, Simpolo.
12.	Stainless Steel Sink	Nirali, Diamond, Nilkanth, Cobra, Jayna.
13.	Plumbing / Sanitary Fixtures	Jaquar (continental), CERA, Parryco India., Hindware, Lauvet, Kohler, RAK.
14.	C.I. Sluice valve, Check valves	Kirloskar, Indian Valve (IVC), Supra (Delhi), Advance, Zoloto, Audco, Atco, Leader, KSB, RB, GM, Arohi, Itron.
15.	HDPE pipes	Dura-Line, Supreme, Ajay, Astral, Prince, Finolex.
16.	Fibre reinforced R.C.C. Manhole Cover	Pratibha, Balaji, CIDCO.
17.	C.I. Manhole cover with frame & gratings	NECO, ISI, Ajay.
18.	P.V.C. Pipes & fittings	Astral, Supreme, Prince, Finolex, Laxmi, Prakash.
19.	Double or Triple layer P.V.C. / H.D.P.E Water Tanks (100% PVC Virgin)	Sintex, Purvi, Aqua, Vertex, Nilkamal.
20.	Ball Cock	GPA Brand by Govardhan Das Jullunder, L & K Brand by L. K. Industries Mathura, Sant Brand by Sant Press Metal Works.
21.	UPVC Pipes – SCH 40 (Solvent Welded)	Astral, Supreme, Prince, Finolex.
22.	C.P.V.C. Pipes (SDR 13.5) & Fittings	Astral, Supreme, Prince, Finolex.
23.	Water meter	Kapstan Bombay, Voltas Kent, GM, Arohi, Itron, Kirloskar.
24.	Sewage Pumps	GRUNDFOS, KSB, ITT LOWARA
25.	Water Pump	GRUNDFOSS, ITT LOWRA, KSB
26.	Pressure Gauge	BELLS / H GURU

LIST OF APPROVED MAKES (FOR FIRE FIGHTING WORKS)		
Sr. No.	Item	Approved Make
1.	Pipes	Tata, Jindal, Surya, Swastik, ET.
2.	Pipe Fittings	R-Brand, Sant-H, Unik, K.S., Priyanka.
3.	Valves	KBL, IVC, Leader, Sant, Priyanka, H. Sarkar, Zoloto, Advance, Audco, GM, Arohi, Itron.
4.	Fire Hydrants	Minimax, Priyanka, Uday, AAG.
5.	Fire Hose Reel	Minimax, Priyanka, Uday, AAG.
6.	Fire Hose, Coupling Branch Pipe, Nozzles, Fire Brigade Inlet	Minimax, Priyanka, Uday, AAG.
7.	RRL Hose	Jayshree, Priyanka, BRG, AAG.
8.	Hose Box	SBJ(AAAG), Durva, Vijay, Asopalav
9.	Pumps	Kirloskar, M&P, HBD, KSB, Crompton, Prima.
10.	Motor	Kirloskar, Siemens, Crompton, ABB, Prima.
11.	Diesel Engine	Kirloskar, Crompton, Fieldmarshal, Greaves, Topland
12.	Battery (Maintenance Free)	Amara Raja, HBL Nife, Exide, Amco, Tata, Hitachi, Bosch.
13.	Battery Charger	Servilink, Amara Raja, Mass-Tech.
14.	Pressure Switches	Switzer, Danfoss.
15.	Pressure Gauge	H-Guru, Fiebig, NKM (Delhi).
16.	Flow Switches	Danfoss, Forbes Marshall, Switzer.
17.	Coating & Wrapping	IWL, Rustech.
18.	Fire Extinguishers	Safety First, Minimax, Fire Fight, AAG.
19.	Bellows	Dhruv, Bellowflex.
20.	Strainers	Emerald, Sant, Tyco, H.J. Fire, AAG.
21.	Sprinklers	Tyco, HD Fire, Priyanka, AAG.
22.	Painting	Berger /Asian / Shalimar

Notes:

A) The contractor shall produce samples of the materials for approval of the RMC/PMC. The materials of the makes out of the above as approved by the RMC/PMC shall be used on the work. RMC/PMC member has not bide to give any reason for rejection of any brand from the above list and its decision will be consider as final.

B) In respect of materials for which approved makes are not specified above, these will be of makes to be decided by the RMC / PMC.

C) Contractor can use for any material of equivalent make of the above specified company after taking prior permission of RMC/PMC.

D) The agency has to use item/material mentioned in the list above. But in exceptional cases, other alternate brand/company shall be allowed after prior approval of RMC/PMC.

RAJKOT MUNICIPAL CORPORATION

D.ADDITIONAL CONDITIONS

1. The contractor shall have to provide his own level instrument (Auto Level) for this work and Line outing for site with the help of total station.

2. Work is required to be carried out in residential / outside area where all the services like water supply, sewage water pipeline, telephone / electric cable are existing. Under the circumstances, prior to starting the work agency shall have to excavate the trenches manually for up to 1 mt depth. During the course of execution, all the services shall have to be maintained by the agency and any damage to any services or property, the agency shall have to get it repair at their cost.

3. While the work in progress, there is possibility of change in location line according to the site conditions. Under these circumstances, the contractor shall have to carry out the work accordingly, for which, no extra payment shall be made in such situations. Over and above, the decision of Engineer-in-charge for change in drainage line routes shall be final and binding to the contractor.

4. The quantity of various items mentioned in the schedule-B is liable to increase or decrease. Under the circumstances, the contractor shall have to carry out the work accordingly. Rajkot Municipal Corporation will not entertain any dispute in this regard.

5. The safety of the traffic and surrounding properties is the prime important factor. As it is the renovation work in existing residential and commercial area the fencing, lighting, covering etc., requires to be provided as per clause 1.1.15. and as per the site requirement. Sign Board shall have to be provided at required locations, so that there will not be any fatal accident.

6. In case of any ambiguity found in inspections / drawings, specifications, etc, the decision of engineer-in-charge shall be final and binding to the contractor.

7. Rates quoted in Bill of Quantities to cover everything necessary for complete Execution of work :

   The rates quoted will be held to cover everything necessary of the due and complete execution of the work according to the drawings and the several conditions and the stipulations of the contract, including specification, or the evident intent and meaning of all or either of them or according to customary usage and for the periodical and final inspection and test and proof of the work in every respect and for measuring, numbering or weighing the same including setting out and laying or fixing in position and the provision of all materials,

   Power, tool rammers, beaters, labour, tackle platforms with impervious lapped joints for scaffolding ranging rods, straight edges, centering and boxes, wedges, moulds, templates, post straight rails, boning-staves, measuring rods, page boards, shores, barriers, fencing, lighting, pumping apparatus, temporary arrangements of passage of traffic, access to premises and continuance of drainage, water supply and lighting (if interrupted by the work) lard temporary sheds and buildings nahanis roofed in or otherwise haulage, painting, varnishing, polishing, establishments for efficient supervision and watching arrangements for the efficient protection of life and property and all requisite plant, implements and appliances every kind, except only such matter and things as it may be distinctly stated here in are to be supplied by the contractors. A rate for anyone description of work is to be held to include such items of other classes of and for these on separate specific charge will be admitted. The contractors shall keep every portion of the work clear of accumulation from time to time and shall leave every portion of the work clean, clear, perfect and at the conclusion of whole, providing at their own cost all such

material implement appliances and labour as the Engineer may require to prove if it is to be so.

8. The contractors are particularly directed to observe from the Articles of Agreement and the specifications, what is to be included in their rates for the several portions of the work and also under what conditions payments are to be made.

9. The contractors has to bear the expenses for all the tests required to be carried out for this tender works.

10. The contractor shall have to avail P F Code as per the prevailing Circular of Government for the employees on work. The process for preparation of bill will be taken up only after submission of the Challan for the amount of P.F. deposited every month for the employees on work, which will binding to the contractor. The required documents shall have to be submitted every month by the contractor to the competent authority.

11. The contractor shall have to get registered under ESI (Employer's State Insurance) Act and obtain ESI Registration number if the number of workers are 10 Nos. or more. Also, the agency shall have to give all the benefits to the workers as available under the ESI Act. The agency should follow all the rules and regulations of ESI Act as per prevailing norms.

12. This office Circular bearing No. RMC/C/329 dated 22-12-2012 and Order No. RMC/C/132 dated 10-06-2013 are uploaded separately as a part of tender document. The Contractors/Consultants quoting their rates shall have to read, implement, and submit the same duly signed along with the documents to be submitted during physical submission.

13. In reference to the above Circular and Order cited para above, the Contractors/Consultant who have quoted their rates for this work will be called in person for verification of original documents. The date and time for verification of original documents will be as prescribed in the tender document.

14. During construction activity, proper care must be taken for labour safety and all the provisions of the labour laws must be followed by the contractor.

15. The G.A. Drawings and other Drawings as provided at present with the tender document are indicative, however, there is possibility of any change or modification in the said drawing and as such the contractor shall have to carry out the work accordingly at the approved rates without any extra cost.

16. After issuance of work order for this tender, if the work falls under any kind of dispute then Rajkot Municipal Corporation reserves the right to terminate the contract for this work awarded to the contractor or execute part work. The decision of Rajkot Municipal Corporation in this regard will be final and binding to the contractor.

17. Till the Completion Certificate is issued by Rajkot Municipal Corporation, the agency will be the sole responsible for security of material and structure at site.

18. The quantities given in the Schedules are provisional. The Rajkot Municipal Corporation reserves the right to increase or decrease the quantity of work or totally omit any item work and the contractor shall not be entitled to claim any extras or damages on these grounds & he is bound to execute the work as per the instruction of the Engineer-in-charge. Rajkot Municipal Corporation will not entertain any dispute in this regard.

19. It is further clarified that Performance Guarantee (SD) for extra work will also be recovered @ 10% from the bill of extra work i.e. works beyond tender amount.

20. The bidder must understand clearly that the prices quoted are for the totally works or the part of the total works quoted for and include all costs due to materials, labour, equipment, supervision, other services, royalties, taxes, duties, etc., and to include all extra to cover the cost. No claim for additional payment beyond the prices quoted will be entertained and the bidder will not be entitled subsequently to make any claim on any ground.

21. Qualified engineer must be deployed on site and at Plant. The details of qualified engineers are to be given to RMC at the time of bidding of this tender.

22. If any irregularities found during the work, then penalty will be imposed by Engineer-in-charge or any higher officer. If any disputes arise regarding penalty imposed by Engineer-in-charge then decision of Municipal Commissioner will be final and binding to agency.

23. The time limit will remain same as mentioned in the tender document and the work is to be completed accordingly.

24. Tender of such Contractor not having registration in appropriate Class and Category, will be treated as non-responsive. In case of any conflicting provisions between registration of appropriate category and Pre-qualification criteria, the later shall govern the process of bid evaluation.

25. The agency shall have to quote their rates only after visiting the site and looking to the site conditions.

26. DEFECTS: Date of completion for start of defect liability period for the entire work will be considered as the last date mentioned in the completion of work recorded in Measurement Book. The contractor shall be required to make good all the damages/ defects identified and conveyed to him, during the entire defect liability period. The method and time limit of rectification will be decided by the Engineer in charge. If the contractor fails to carry out rectification as per the instructions, the same will be carried out at his cost and the cost will be recovered from the amount retained.

27. Joint venture shall not be allowed under this tender.

28. After the completion of work, at the interval of every three months, joint inspection must be done by the agency and RMC staff and then agency has to submit the report stating the condition of work to Rajkot Municipal Corporation. The final checking report stating the condition of work is also to be submitted by the agency before one month of the expiry of defect liability period to the competent authority.

29. The Royalty of each and every material, required to be paid is to be borne by the contractor.

30. Testing of each material as and when required by Rajkot Municipal Corporation, is to be carried out in Government approved laboratory by the contractor at his own cost. Schedule of testing of material will be as per R&B, State Government Manual and I S Code provision.

31. Necessary tests for material quality, soil tests etc. shall be carried out as per the instructions of engineer-in-charge by contractor at his own cost and reports to be submitted to the engineer-in-charge.

32. As this work is to be done in existing structure and also keeping in mind surrounding properties, all due precautions should be taken so that no damage occurs to any of the services like; water connection, drainage connection, water pipeline, drainage line or

any other services. However, if any damage occurs to any of such service(s) then the contractor shall have to carry out necessary repairs immediately and satisfactorily, at his own cost.

33. Wherever the rolling with the road roller is not possible on metalling work and murrum work, the compaction with hand roller or by any other means at such places shall have to be carried out by the contractor satisfactorily as per instructions of engineer-in-charge.

34. The Contractor shall carry out modifications in the procedure of work, if found necessary, as directed by the Engineer during inspection. Works falling short of quality shall be rectified / redone by the Contractor at his own cost, and defective work shall also be removed from the site of works by the Contractor at his own cost.

35. Defective Materials: All materials which the Engineer / his representative has determined as not confirming to the requirements of the Contract shall be rejected whether in place or not; they shall be removed immediately from the site as directed. Materials, which have been subsequently corrected, shall not be used in the work unless approval is accorded in writing by the Engineer. Upon failure of the Contractor to comply with any order of the Engineer / his representative given under this clause, the Engineer-in-charge shall have authority to cause the removal of rejected material and to deduct the removal cost thereof from any payments due to the contractor.

36. **The Defect Liability period for this work is 36 months**. After completion of work, a report at the interval of every six months by way of joint inspection shall have to be submitted to the competent authority. The portion which is observed defective / damaged by normal cause during the joint inspection shall have to be repaired/rectified and necessary evidence along with photographs shall also have to be submitted to the competent authority.

37. The agency shall have to get interior done from the approved Architect / Engineer and also to get approved from engineer-in- charge. The agency shall have to get the approval within a period of 7 (Seven) days.

38. The Plans got prepared by the agency shall have to be get the design done from the Structural Engineer, the cost of which also is to be borne by the agency.

39. The work order will be given only after getting the preliminary approval from Town Planning Department.

40. Providing and fixing of precast RCC slab and column shall have to be carried out in line and level.

41. For excavation of trench, use of JCB machine will not be permitted directly on the top surface of the road. After excavation up to minimum 1.00 mt. depth from road surface or existing ground level, same shall have to be carried out manually or by using Breaker and after locating underground services like; water supply pipeline, water connection lines, pipe gutters, telephone cables, electric cables etc., and thereafter upon taking the prior approval of the Engineer-In-Charge, the excavation can be carried out by using JCB machine.

42. Rajkot Municipal Corporation shall recommend to the competent authority to give Controlled Blasting License to the contractor for carrying out excavation in hard rock. In case of blasting license not permissible from the competent authority in some places then excavation is to be done by using wedges and hammers, chiseling, breakers, pneumatic tools, etc. Also in case where blasting license is permitted but even then if there is no possibility of carrying out the blasting for whatsoever reason, the excavation is to be done by using Wedges and hammers, chiseling, breakers, pneumatic tools etc. No extra

payment shall be made for excavation to be carried out in any of the above mentioned both the situations.

43. Excavation in soft rock and hard rock shall have to be carried out only by Chiseling, Breaker (pneumatic tools) etc., as far as possible. If excavation is not possible in terms of above and if excavation is required to be carried out with the help of blasting then the same shall have to be carried out only after taking prior approval and necessary license for blasting from the competent authority.

44. In case of excavation not possible manually or by chiseling in certain place(s) as well as if blasting is also not possible due to various reasons i.e. to avoid damage to nearby water pipeline, pipe gutter, telephone cables / Duct, Raw houses / week buildings / narrow street etc., then the excavation by blasting will not be permitted. Under these circumstances, excavation shall have to be carried out only by Breaker (pneumatic tools) as per the instructions of the Engineer-In-Charge. No extra payment will be made for such type of excavation done by using Breaker. The rate for excavation shall be paid as per the rate of related item mentioned in Schedule-B.

45. Regarding the width of excavation, as (a) it is difficult to carry out the vertical trench excavation, (b) possibility of sliding the soil, and
(c) uneven excavation trench width in case of blasting. In this connection, for every 1.5 mt lift if there is less width up to 5 cm at the bottom then the top width of excavated trench, it shall be considered as per the specified trench width or actual trench width carried out at the ground level by the contractor whichever is less. If excavation is carried out more than the specified width then the payment will be made only for the specified width of excavation.

46. After entering into an agreement, the agency shall have to finalize the agency for supply of the material like Precast RCC slab and column and the name of manufacturer / supplier should immediately be informed to Rajkot Municipal Corporation so that Rajkot Municipal Corporation can also expedite the manufacturer / supplier for the material. If necessary, Rajkot Municipal Corporation will visit and inspect the factory. During the inspection, if Rajkot Municipal Corporation is not satisfied then the contractor shall have to procure the material from other manufacturer(s).

47. During construction activity, proper care must be taken for labor safety and all the provisions of the labor laws must be followed by the contractor.

48. The G.A. Drawings and other Drawings as provided at present with the tender document are indicative, however, there is possibility of any change or modification in the said drawing and as such the contractor shall have to carry out the work accordingly at the approved rates without any extra cost.

49. The contracting Agency then has to prepare bar bending schedule as per Structural Drawings and submit it to RMC after then RMC shall permit to work to start. Structure design is in the scope of work of contractor and its cost is to be borne by the contractor. The structure designer should be RMC license holder. The proof check of the structure design should be done by one of the structure designers, as suggested by RMC. (If the structure designer is suggested by RMC, then the proof check is not needed.) Bar Bending Schedule, register shall be maintained on site with the details of cut length of bar. The certificate for same shall be denoted in Pour Card.

50. Contract Agency has to provide a Site Office Room, a separate Laboratory included with necessary lab instruments for slump test, sieve analysis, etc. whatever suggested by Site Engineer in charge on site premises. There shall be provision of minimum 24 cube mould of 15 x 15 x 15 cm size and 12 mould of 7.5 x 7.5 x 7.5 cm. There shall be a provision of

necessary stationary & Furniture. The periodical calibration of instruments like weigh batch Plant, Electronic Balance etc. shall be carried out as per instruction of Engineer in Charge. Without satisfactory report for the same the work may not be continued.

51. The Mix Design of Cement Concrete shall be revised submitted with respect to changes in Materials like Cement, Sand, Aggregate

52. The Final Completion Drawings shall be submitted in hard copy and as Auto Cad format by Agency. If the same is not submitted, the permanent deposit 0.25 % of Final Bill amount will be deducted from Final bill.

53. After the drawings for the proposed work are finalized by RMC, the agency has to submit the same to qualified & experienced structure engineer.

54. The agency has to submit the approved & signed copier of structure design 3 sets to Rajkot Municipal Corporation.

55. Agency has to get the structure designs proof checked by the structure engineer suggested by Rajkot Municipal Corporation and the fees for the same shall be borne by the agency.

56. Additional alternation changes during the work shall has to be incorporated in the structure drawing & shall be re submitted to Rajkot Municipal Corporation accordingly.

57. The contracting Agency then has to prepare bar bending schedule, submit it to Rajkot Municipal Corporation & PMC. &After checking the bar bending schedule, then Rajkot Municipal Corporation shall permit to work to start.

58. The rate of extra items which is not included in tender item is to be taken from the SOR of RMC/GWSSB/PWD R& B which is prevalent at the time of tendering. The rate of the extra items would be considered in the same percentages (more or less) as quoted by the contractor.

59. In case, any point in the tender is described differently at two places, RMC (Rajkot Municipal Corporation)/PMC will be the final authority to take the final decision.

60. Approval to the samples of various materials given by the Engineer- in-charge shall not absolve the contractor from the responsibility of replacing defective material brought on site of materials used in the work found defective at a later date. The contractor shall have no claim to any payment of compensation whatsoever on account of any such materials being rejected by the Engineer-in-charge.

61. The agency has to facilitate the Town Planning department in all respective terms and has to provide all the required items as instructed by a surveyor of Town planning Dept. The items which are required for demarcation are colors, Tags, Nails, labors and agency will also be responsible for cleaning of the plot without any extra cost.

62. The agency has to create the passage/access to the plot where the work is supposed to start. If in case the access to plot is restricted by any farming land, then the agency has to take a proper arrangement for passage and whatever the cost occurred in the construction of the passage, the agency has to pay the cost of its own.

63. The compound wall has to be constructed with the proper guidance by the Engineer- in-charge, such as if the land has difference in the level (irregular topography), then the agency has to construct the compound wall in the step pattern form.

64. The top of the precast wall will be either in Semi-circular or triangular whichever instructed by the Engineer-in-charge. The Measurement of the Semi-circular or triangular item of the precast wall will be taken from the middle of the section of the item.

65. If in case the Semi-circular or triangular item of the precast wall will not be fixed, then the agency has to keep the top section of precast pole empty, without any curtailment in the height of the pole. But the measurement will be counted only for the constructed slabs.

66. In the precast wall, either the cement mortar in the ratio of 1:1 or Standard chemical mortar to be filled in Groove i.e. the area between two precast slabs and the area between the slabs and pole, whichever instructed by the Engineer- in- charge.

67. The restoration work for the excavation done is to be carried out immediately as per the instructions of engineer in charge. The excess material shall have to be disposed with no extra cost at the site specified by engineer-in-charge.

68. The contractor (agency) has to hand over the warranty certificate and maintenance manual of all the manufactured, installed equipments (i.e. lift, submersible pump, etc) to the newly formed body of the beneficiaries/RMC. (Association).

The word "Arbitration" or "Arbitration Clause" wherever mentioned in this tender document, is now to be treated as "Deleted". In this context, an Order bearing No.RMC/Legal/1858 dated 18-02-2017 of Legal Department of Rajkot Municipal Corporation is uploaded separately along with this tender, which Order, will hereafter be referred and taken into consideration for Arbitration related purpose for the tenders of Rajkot Municipal Corporation.

ADDL. CITY ENGINEER
Rajkot Municipal Corporation

Signature of Contractor with Seal

Rajkot Municipal Corporation

:: SPECIAL CONDITIONS ::

1. The Royalty of each and every material, required to be paid is to be borne by the contractor.

2. Testing of each material as and when required by Rajkot Municipal Corporation, is to be carried out by the contractor at his own cost. Schedule of testing of material will be as per R&B, State Government Manual and I S Code provision.

3. The whole work shall be executed by qualified Site Engineer. The required L- Section and Cross section is to be prepared by contractor at his own cost. The work should be done by levelling instrument. The Drawings shall be submitted accordingly in advance before starting the work. No extra payment will be made for the above work. Contractor has to submit Bill form with hard copy and soft copy of cross section and L-section of work completed. No bill will be accepted without above drawings.

4. Immediately after taking possession of the site, contractor is required to provide office building with following details for the Client i.e. RMC, as per the instruction of Engineer In-charge. No payment for the same shall be given. On completion of the project, this shall become the property of RMC

   - Room for Office Space of approx. 10 to 12 Sqm. For RMC/PMC staff with Full Facility of Approved Flooring, Painting, Door, Window, AC, Complete including 3 to 4 Table and 8 Chairs, with separate sintex Water Tank for Toilet and Drinking Water with sufficient capacity.

   - 1 Nos. of Colour Laser Printer with Scanner & Copier, Internet Connectivity in each Computer

   - Office shall have 3 Table with Chair & 4 Nos. visitor chair & 2 Steel Cupboard

5. Necessary tests for material quality, Paving Blocks, soil tests etc. shall be carried out as per the instructions of engineer-in- charge by contractor at his own cost and reports to be submitted to the engineer-in-charge.

6. Tender Drawing

The Architect drawings listed in this Tender, which may be issued with the tenders, are diagrammatic and indicate arrangement of various systems and the extent of work covered in the contract. These drawings indicate the points of supply and of termination of services and broadly suggest the feasible scheme and routes to be followed.

Contractor shall visit site prior to start-up of work to ensure that the layouts meet and match the structural openings and paths for smooth execution.

All such changes shall however be subjected to the Architect / Consultant approval.

This Drawings are not working drawings.

Under no circumstances shall dimensions be scaled from these drawings. The Architectural / Interiors drawings and details shall be examined for exact location of equipment, controls.

If required, the contractor shall follow the tender drawings in preparation of his

shop drawings, and for subsequent installation work. All works of execution should only commence after receipt of the signed & stamped approval of the consultant / client.

Maximum headroom shall be maintained at all points. Where headroom appears inadequate, the contractor shall notify the Architect / Consultant / Owner's site representative any discrepancies and obtain clarification. Any changes found essential to coordinate installation of their work with other services and trades, shall be made with prior approval of the Architect / Consultant / Owners site representative without additional cost to the Owner. The data given in the drawings and specifications is as exact as could be procured, but its accuracy is not guaranteed.

7. The Tenderer shall study the project information in brief. The project information in brief is meant only to give the general guidelines to the Tenderer about the project and is not for execution. The tender drawings may undergo a complete change. The Contractor shall make his own arrangements to unload, transport and stack the material in his godown at his own cost. He shall take the material into his safe custody only after inspection and verification of the quality and the quantity of the material received by the EIC/Consultant. The Contractor shall make his own independent arrangement to procure all other materials required to complete the work.

8. **Technical Data**

Each tenderer shall submit along with his tender, the technical data, list of makes and data sheets for all items / equipment's offered by them. **Failure to furnish complete technical data with tenders may result in summary rejection of the tender.**

9. The contractor shall have to get registered under ESI (Employer's State Insurance) Act and obtain ESI Registration number if the number of workers are 10 Nos. or more. Also, the agency shall have to give all the benefits to the workers as available under the ESI Act. The agency should follow all the rules and regulations of ESI Act as per prevailing norms.

10. The testing of metal and the design as per IRC shall have to be carried out by the contractor at his own cost.

11. PMC's Fee 1.80% of Total Project Cost will be Deduct in Contractor's Running Bill.

12. Structure design is to be prepared by contractor and after approval of engineer-in-charge the work can be started. Consultant is approved by Architect/RMC.

ADDL. CITY ENGINEER
Rajkot Municipal Corporation

Signature of Contractor with Seal

PART-III
BILL OF QUANTITIES
(Attached in Separate Folder)

BID FORM (WITH PRICE)

CONTRACT No: RMC/ENGG/CZ/24-25/_____-
Bidders are required to fill up all blank spaces in this Bid Form The Commissioner
Rajkot Municipal Corporation Dr. Ambedkar Bhavan Dhebar Road
Rajkot
Dear Sir,

SUB : CONSTRUCTION OF U.P.H.C. & CITY TB CENTER AT RAILNAGAR IN WARD NO. 03,RMC (CENTRAL ZONE)

1. Having visited the site and examined the Bid Documents, Drawings, Conditions of Contract, Specifications, Schedules, Annexures, Preamble to Price Schedules, Price Schedules etc. including Addenda/Amendments to the above, for the execution of the above Contract, we the undersigned offer to carry out as given in Conditions of Contract and in conformity with the Drawings, Conditions of Contract, Specifications, Preamble to Price Schedules, Price Schedules, Annexures, Bidding Documents, including Addenda Nos._____(insert numbers) for_____%age (in figure)
_____
(in words) below / above than the rates given in Price Schedule.

2. I / We agree that
   (a) if we fail to provide required facilities to the Employer's representative or any other person/agency by the employer to perform on his behalf for carrying out the inspection and testing of materials and workmanship
   or
   (b) if we incorporate into the Works, materials before they are tested and approved by the Engineer's representative
   or
   (c) if we fail to deliver raw water of required quantity according to the conditions/stipulations of the Contract, the Engineer will be at liberty to take any action including termination of Contract and
   (d) impose at his absolute discretion any penalties, and/or reject the work.

3. We undertake, if our Bid is accepted, to complete and deliver the Works in accordance with the Contract within **15 Months** of construction period from the date of Work Order issued to us by you.

4. We agree to abide by this Bid for a period of 120 Days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiry of that period.
5. In the event of our Bid being accepted, we agree to enter into a formal Contract Agreement with you incorporating the conditions of Contract thereto annexed but until such agreement is prepared this Bid together with your written acceptance thereof shall constitute a binding Contract between us.
6. We agree, if our Bid is accepted, to furnish Performance Bond/Security in the forms and of value specified in the Conditions of Contract of a sum equivalent to 5% of the Contract price for due performance of the Contract.

7. We have independently considered the amounts of liquidated damages shown in Appendix to Bid and agree that they represent a fair estimate of the damages likely to be suffered by you in the event of the Work not being completed by us in time.
8. We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated_____this_____day of_____2016.

_____

Company Seal _____

(Signature) (Name of the person)

_____ _____

(Name of firm) (In the capacity of)

Duly authorised to sign Bid for and on behalf of (Fill in block capitals)

_____

_____

_____

Witness

Signature _____

Name _____

Address _____ _____

PREAMBLE TO PRICE SCHEDULES

Note on Schedule:

The bid is percentage rate bid for **CONSTRUCTION OF U.P.H.C. & CITY TB CENTER AT RAILNAGAR IN WARD NO. 03,RMC (CENTRAL ZONE)**

1. The bid is percentage rate bid.

2. The rates and prices shall be submitted in the formats given in the online Price Schedules. Rates and prices received in any other formats will be rejected and the Bids will be disqualified.

3. It will be entirely at the discretion of the Employer to accept or reject the bidder's proposal, without giving any reasons whatsoever.

4. In Price Schedule, bidder shall quote his percentage Equal/Above/Below for items listed in the schedule. Prices quoted in Schedule only will be considered for price evaluation & shall form a part of the Contract Agreement.

5. The Only Price Schedule will be considered for financial evaluation of the bid with the successful bidder.

6. The bidder shall be deemed to have allowed in his price for provision, maintenance and final removal of all temporary works of whatsoever nature required for construction including temporary bunds, diverting water, pumping, dewatering etc. for the proper execution of works. The rates shall also be deemed to include any works and setting out that may be required to be carried out for laying out of all the works involved.

7. Where there is a discrepancy between the unit rates and the amount entered, the latter shall govern.

8. The Price Schedules are to be read in conjunction with the Conditions of Contract, the Specifications and other sections of these bid documents and these documents are to be taken as mutually explanatory of one another.

9. Prices quoted by the bidder shall be firm for the entire period of Contract without any escalation.

10. The bidder shall interpret the data furnished and carry out any additional survey work, or investigative work required at his own cost.

11. The prices quoted shall also include the cost of materials utilized for testing.

12. The bidder should acquaint himself with the site conditions including the access to Worksite. The successful bidder shall have to make suitable access to worksites at his own cost. These accesses will be used by the other contractors working for RMC.

13. The material shall be inspected Departmentally, the cost of which, if any, is to be borne by contractor.

14. The contractor shall have to **quote their rates without GST** and including other taxes. The invoice should be submitted by contractor showing the breakup of GST in the bill.

    The contractor shall have to purchase the material required for this tender work, only from the supplier having registered GST Number.
    RMC will not be responsible to pay any amount towards GST if the material is purchased

from the unregistered supplier / not having GST Number.
The amount of GST shall be reimbursed by RMC to the contractor on submission of valid proof or documentation of the actual payment made to the Department of GST.

15. In case of extra item work if quoted and approved tender price is above Percentage Rate then no above percentage rate will be given, only the rates as per S.O.R. will be paid for such extra item. But if the quoted and approved tender price is below percentage rate then that below percentage rate will be considered for paying of any extra item.

16. The whole work is to be done under the supervision of RMC.

17. The rates and prices shall be submitted in the formats given in the enclosed Price Schedules. Rates and prices received in any other formats will be rejected and the Bids will be disqualified.

18. It will be entirely at the discretion of the Employer to accept or reject the bidder's proposal, without giving any reasons whatsoever.

19. In Price Schedule, bidder shall quote his percentage Equal/Above/Below for items listed in the schedule. Prices quoted in Schedule only will be considered for price evaluation & shall form a part of the Contract Agreement.

20. Only Price Schedule will be considered for financial evaluation of the bid with the successful bidder.

21. The Price Schedules are to be read in conjunction with the Conditions of Contract, the Specifications and other sections of these bid documents and these documents are to be taken as mutually explanatory of one another.

22. Prices quoted by the bidder shall be firm for the entire period of Contract without any escalation.

23. The bidder shall interpret the data furnished and carry out any additional survey work, or investigation work required at his own cost.

24. The prices quoted shall also include the cost of materials utilized for testing.

25. The bidder should acquaint himself with the site conditions including the access to Worksite. The successful bidder shall have to make suitable access to worksites at his own cost. These accesses will be used by the other contractors working for RMC.

26. From each Running Account Bill, labour cess will be deducted as per norms.

27. In Every running bill 0.25% amount shall be retained as extra security deposit if Drawings of work done are not submitted by agency.

28. The quoted rates should be inclusive of all taxes and duties.(Except GST)

29. The prices shall have to be quoted firm & fix including all the taxes & duties without any statutory variation. RMC will not consider any statutory variation as well as the price rise in the market and if any, those shall be on account of contractor. (Except GST)

30. The work contract tax will be borne by the agency.

31. While considering experience of ongoing sewer/storm water pipeline works, part work completed in all respect will be considered for evaluation of bid. In this regard contractor

shall be required to submit part completion certificate along with bid document from competent authority.

32. Use of ready-mix concrete may be permitted if it fulfils tender specifications.

33. No extra item or extra width will be paid due to excavating method or type of machinery.

34. For any type of license regarding labour, etc. has to be achieved by agency.

35. This office Circular bearing No. RMC/C/329 dated 22-12-2012 and Order No. RMC/C/132 dated 10-06-2013 are uploaded in tender document.

36. In reference to the above Circular and Order cited at above, the Contractor firm who have quoted their rates for this work will be called in person for verification of original documents. The date and time for verification of original documents will be intimated to the Contractors.

37. If the progress of work is found slow then Extra security Deposit may be recovered from any running bill as decided by Engineer in charge up to maximum 5% amount of concerned R.A. Bill amount.

38. In case of Extra Item, No "**On**" %age i.e. +ve % age Rate will be given but if there is Down %age i.e, -ve % age Rate that will be applied to that rate of that Extra Item.

ADDL. CITY ENGINEER
Rajkot Municipal Corporation

Signature of Contractor with Seal

Check List for submission of Documents	
Tender Fee submitted as per Tender	Yes / No
Tender Earnest Money Deposit submitted as per Tender	Yes / No
Registration documents submitted as per tender requirement	Yes / No
Financial Details:	
Turnover details submitted as per requirement	Yes / No
Working Capital as per requirement of tender is submitted	Yes / No
Valid Bank Solvency submitted	Yes / No
Validity of Bank Solvency	Date:
Experience Details:	
Details of Technical Staff and details of machineries submitted	Yes / No
Address proof submitted	Yes / No
Identity proof submitted	Yes / No
Fresh Declaration on Non-Judicial Stamp Paper regarding not black listed or Terminated or Debarred, is submitted	Yes / No
Professional Tax Receipt of current year	Yes / No

Note:
Over and above, the agency shall also have to submit all other necessary documents as may be required for pre-qualification, failing which, the agency will be treated as Non-responsive and will be DISQUALIFIED and also the online price bid of such agency will not be opened.

Signature of Contractor with seal

PRICE SCHEDULE

Rajkot Municipal Corporation

Price Schedule – B

Name of work:
CONSTRUCTION OF U.P.H.C. & CITY TB CENTER AT RAILNAGAR IN WARD NO. 03,RMC (CENTRAL ZONE)

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	Civil Items				
1	Excavation of Foundation in **Soft Murrum** Soil or Sand from **0.00 mtr. To 1.50 mtr.** Depth including up to all lifting and laying in Lead area as instructed	847.00	Cu.Mt.	₹ 133.00	₹ 1,12,651.00
2	Excavation of Foundation in **Hard Murrum**, Soil or Sand from **0.00 mtr. To 1.50 mtr.** Depth including up to all lifting and laying in Lead area as instructed	363.00	Cu.Mt.	₹ 141.00	₹ 51,183.00
3	Excavation of Foundation in **Hard Murrum,** with Breaker /Blasting /Gann from **1.50 mtr. to 3.00 mtr** depth including up to all lifting and laying in lead area as instructed	185.00	Cu.Mt.	₹ 159.00	₹ 29,415.00
4	Excavation of Foundation in **Soft Rock** with Breaker /Blasting /Gann from **1.50 mtr. to 3.00 mtr** depth including up to all lifting and laying in lead area as instructed	123.00	Cu.Mt.	₹ 343.00	₹ 42,189.00
5	Removel of **Excavated Stuff** and Laying with in RMC Limit as directed by Engineer in charge	607.00	Cu.Mt.	₹ 171.00	₹ 1,03,797.00
6	Foundation filling with **CC work** in proportion of **M-150** using 1.5 cm to 2.0 cm aggregate including Raming, Curing etc.	246.00	Cu.Mt.	₹ 4,626.00	₹ 11,37,996.00
7	Providing and laying **C.C. work in M-250** using aggregate of size 10-20 mm,centring, curing, finishing etc. complete for : (A) foundation, **footing,** base of columns and mass concrete (without reinforcement)	158.00	Cu.Mt.	₹ 5,620.00	₹ 8,87,960.00
8	Providing & laying **CC work M-250** for **Column** using aggregate of size 10-20 mm,centring, curing,	112.00	Cu.Mt.	₹ 6,550.00	₹ 7,33,600.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	finishing etc. complete (without reinforcement)				
9	Providing and laying **C.C. work in M-250** using aggregate of size 10-20 mm,centring, curing, finishing etc. complete for : D) **Plinth Beam** (without reinforcement)	87.00	Cu.Mt.	₹ 6,250.00	₹ 5,43,750.00
10	**Brick work** using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. for all floor level in **Cement Mortar 1:6 (1- Cement : 6 -fine sand)**	114.00	Cu.Mt.	₹ 5,761.00	₹ 6,56,754.00
11	Filling of Plinth with using excavated usefull material partly and remaining murrum to be brought from out side in layer of 0.23 m thick including murrum and sprinkling of water, compaction etc. complete	651.00	Cu.Mt.	₹ 185.00	₹ 1,20,435.00
12	Filling of Plinth in layers of 0.23 m thick including murrum and sprinkling of water, compaction etc. complete	550.00	Cu.Mt.	₹ 347.00	₹ 1,90,850.00
13	Carring out **plinth treatment** to post construction/existing structure by spraying chemical solution for termite control treatment including labour and material consistment with I.S.I. Specifications.	523.00	Sq.Mt.	₹ 41.90	₹ 21,913.70
14	Providing & laying **CC work** (M:25) for **Beam** using aggregate of size 10-20 mm,centring, curing, finishing etc. complete (without reinforcement)	113.00	Cu.Mt.	₹ 6,250.00	₹ 7,06,250.00
15	Providing & laying **CC work** (M:25) for **RCC slab** using aggregate of size 10-20 mm,centring, curing, finishing etc. complete (without reinforcement)	174.00	Cu.Mt.	₹ 6,150.00	₹ 10,70,100.00
16	Providing & laying **CC work** (M:25) for **Lintel** using aggregate of size 10-20 mm, centring, curing, finishing etc. complete (without reinforcement)	8.00	Cu.Mt.	₹ 6,000.00	₹ 48,000.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
17	Providing & laying **CC work** (M:25) for **Chhaja** using aggregate of size 10-20 mm, centring, curing, finishing etc. complete (without reinforcement)	24.00	Cu.Mt.	₹ 5,950.00	₹ 1,42,800.00
18	Providing & laying **CC work** (M:25) for **Stair Case** using aggregate of size 10-20 mm,centring, curing, finishing etc. complete (without reinforcement)	9.00	Cu.Mt.	₹ 6,300.00	₹ 56,700.00
19	Providing & laying **CC work** (M:25) for **Copping,RCC Bend** using aggregate of size 10-20 mm,centring, curing, finishing etc. complete (without reinforcement)	28.00	Cu.Mt.	₹ 5,550.00	₹ 1,55,400.00
20	**CC work M-25 for Wall** Partition, Parsdment, railling etc.using aggregateof size 10-20 mm, centring, curing, finishing etc. complete (without reinforcement)	31.00	Cu.Mt.	₹ 7,150.00	₹ 2,21,650.00
21	Supplying, Cutting, Beding, Binding and Hooking and binding with wire for RCC work Tor steel **TMT** round bar including all cost	84830.75	Kg.	₹ 65.00	₹ 55,13,998.75
22	Masonary work using Aerated Light Weight concrete block having crushing strength not less than 35kg/sq.cm. and 0.20wmk thermal conductivity for super structure above plinth level to ALL FLOOR in chemical mortar complete as per technical Specification. (FOR ALL FLOOR)	751.00	Cu.Mt.	₹ 3,982.00	₹ 29,90,482.00
23	Providing and fixing 150 mm wide, approved quality chicken wire mesh at junction of brick/AAC Block work and RCC work or two dissimilar surfaces, at all heights fixed by nails, rowal plugs or tag by cement mortar 1:3 before applying the plaster, including curing, scaffolding all complete as directed.	180.00	Sq.Mt.	₹ 102.00	₹ 18,360.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
24	Cement Plaster Work 12mm average thick using Cement: Mortar in proportion of 1:3 rough cast (without Niru Finishing)	3963.00	Sq.Mt.	₹ 207.00	₹ 8,20,341.00
25	Applying two coats of Aprroved Made **Birla or JK lapy (putty) three coats** & three coats of primer of approved brand and manufacture on new wall surface with 2 years warrantee (to give an even shade including thoroughly brushing the surface free from mortar dropping and other foreign matter and sand papered smooth.)(FOR ALL FLOOR)	3963.00	Sq.Mt.	₹ 82.00	₹ 3,24,966.00
26	**20mm thick Sand Face Cement Plaster** Work in which 1st plaster in proportion of 1:3 and 2nd plaster in proportion of 1:2 using Cement:Mortar mixed with fibre, spong finishing etc. complete (Note: Before carringout Plaster work on RCC, required tipping work should be carried out as instructed)for all Floor level.	3387.00	Sq.Mt.	₹ 263.00	₹ 8,90,781.00
27	**Plaster with grooving and Patta** of size 5 cm to 10 cm width and 12 to 20 mm thick using in proportion of 1:3 (FOR ALL FLOOR)	300.00	R.M.	₹ 35.00	₹ 10,500.00
28	**Water Proof Cement Plaster 20 mm** thick using Water Proofing Compound and in the ratio of 1:3 with necessary finishing (Note: Before carringout Plaster work on RCC, required tipping work should be carried out as instructed)(FOR ALL FLOOR)	505.00	Sq.Mt.	₹ 234.00	₹ 1,18,170.00
29	Supply & fixing of **Vitrified flooring** (1st quality) with cement grouting in joints etc. complete. (FOR ALL FLOOR)	811.00	Sq.Mt.	₹ 650.00	₹ 5,27,150.00
30	Supply & fixing of Vitrified for skirting work (1st quality) width up to 10 cm including with cement	827.00	R.M.	₹ 96.00	₹ 79,392.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	grouting in joints etc. complete (FOR ALL FLOOR)				
31	Supply & Fixing of Glazed tiles (1st Quality) of required size in Cement paste and joints to be filled with white cement after 12mm rough plaster in proportion of 1:3 (FOR ALL FLOOR)	720.00	Sq.Mt.	₹ 493.00	₹ 3,54,960.00
32	Supply & Fixing of Polished Kota Stone steps and risers work of length 0.90 to 2.00 mtr and thickness 20-25 mm to be fixed in Cement:Mortar 1:2 and Cement slury and as instructed	177.00	R.M.	₹ 442.00	₹ 78,234.00
33	Supply, Fixing & Polishing of Kota Stone work thickness 20-25 mm to be fixed in cement:Mortar 1:2 and liquid Cement and as instructed (ALL FLOORS)	20.00	Sq.Mt.	₹ 913.00	₹ 18,260.00
34	Supply & Fixing of Machine cut free edges **Sill Jams Granite Stone** approved shade, thickness on wall after rough cast Cement Plaster in proportion of 1:3 and fixing grainage in Cement Paste in single piece **Zigzag pattern** (All Open edges should be full round polished). As per drawing or as per instruction given by engineer in charge.	233.00	Sq.Mt.	₹ 2,882.00	₹ 6,71,506.00
35	Supply, Fixing & Polishing for **Granite Flooring work 18mm thick** & 200 mm Base of Cement: Mortar in proportion of 1:2 Approved Shade (All Open edges should be full round polished). As per drawing or as per instruction given by engineer in charge.	21.00	Sq.Mt.	₹ 2,970.00	₹ 62,370.00
36	Providing and fixing machine cut free edges **machine polished Kota stone** open storage perellel and paltform supprot to walls single piece 25 mm including cutting grooves in walls and fixing the stone including vertical support and shelves with cement mortar 1:4 and finishing the same	64.00	Sq.Mt.	₹ 858.00	₹ 54,912.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	with neat cement slurry in true line and level and front edge Full round polishing as per detailed drawing and as directed etc. complete				
37	Apex Color work with water proofing cement paint of on wall surfaces (Two coats or as per instruction of site Incharge) to give an approved brand and manufacture and of required shape even shade after thoroughly brushing the surface to remove all dirt and remains of loose powder materials. (FOR ALL FLOOR) .	3387.00	Sq.Mt.	₹ 115.00	₹ 3,89,505.00
38	Plastic Imulsion Paint (Two coats) (Asian Paint, ICI, Dulux, Nerolac, Berger etc. of approved type) (with Prime Coat) .	3963.00	Sq.Mt.	₹ 145.00	₹ 5,74,635.00
39	Cement, lodhiya work with neat cement slurry finishing (FOR ALL FLOOR)	778.00	R.M.	₹ 26.00	₹ 20,228.00
40	Providing and fixing 35 mm thick good quality flush door shutter with 01 mm laminated sheet on both side and necessary SS and aluminium fixtures and fastening as per satisfaction of Engineer in charge complete.	130.00	Sq.Mt.	₹ 2,811.00	₹ 3,65,430.00
41	Providing and fixing **FRP frame** size 100x50 mm and 28mm thick FRP depress panel shutter having extra reinforcement on sides & edges in Gel coat finish. The core of the shutter & frame is to be filed up with injected fire retardant grade polyurethene foam done in situ alongwith embedded wooden pieces for stiffening & also taking hinges & fintures. The whole FRP frame & shutter is to be water proof weather proof, termite proof & resistance to mild acid/alkali. Rates are to be inclusive of S.S hinges with necessary screws & alluminium fixtures & fastenings & fastener sleeve.	39.00	Sq.Mt.	₹ 4,200.00	₹ 1,63,800.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
42	**Aluminium section window work** (with 3 track mosquito net) (jindal)(with necessary all fittings)	134.00	Sq.Mt.	₹ 7,061.00	₹ 9,46,174.00
43	Iron work as per drawing and instruction including all (FOR ALL FLOOR)	3907.00	Kg.	₹ 109.00	₹ 4,25,863.00
44	Grill work for doors - windows etc. as per design on site with fitting & fixing. (FOR ALL FLOOR)	2800.00	Kg.	₹ 109.00	₹ 3,05,200.00
45	Enemal painting on door/window, iron door, iron grill or woodwork two coat and including preparing the surface by throughly cleaning oil, grease, dirt and other foreign matter, sand papering and knotting. (FOR ALL FLOOR) .	432.00	Sq.Mt.	₹ 125.00	₹ 54,000.00
46	Numbering on Building / Quarters (Painting work) as directed .	79.00	Character	₹ 11.00	₹ 869.00
47	Providing & laying Cement concrete flooring (IPS) 50mm thick in proportion M-15 with a floating coat of neat cement,finishing,curing etc.	712.00	Sq.Mt.	₹ 338.00	₹ 2,40,656.00
48	Supply & Fixing of Broken Glazed (China Mosaic) tiles size 5-6 mm thick of different size and shade (approved crazy patern) in Cement:Mortar 1:2 and joint filling with White Cement / Coloured Cement with water proofing component including Ramping, Watering, Curing etc. complete (FOR ALL FLOOR)	542.00	Sq.Mt.	₹ 306.00	₹ 1,65,852.00
49	Supply & Fixing of 60mm M-30 Grade cement concrete rubber mold paving inter locking paving block (Grey colour) after beding of black stone powder in line, SRI greater than 50 ,approved tecnical specification and CC on the edge in proportion of 1:2:4 with curing etc. complete.	1055.00	SQ.Mt.	₹ 500.00	₹ 5,27,500.00
50	Providing and fixing standared extruded of alluminium section of size 63mm x 38.10mm x 1.2mm (Wt. 0.643 Kg/mt) with colour Powder Coated alluminium	12.00	Sq.Mt.	₹ 1,163.92	₹ 13,967.04

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	frame for ventilation with 5 mm thick frosted glass as details etc complete for Ventilation.				
51	18 guage collepsible gate with primer & double coat oil paint.	19.00	SQ.Mt.	₹ 3,137.00	₹ 59,603.00
52	Providing & Fixing Solar panel As per directed by site incharge. With Fabrication and all installaton work.	5.00	KW	₹ 67,000.00	₹ 3,35,000.00
53	SHEETING: Providing, Supplying & erecting of roofing sheets of JSW / Bhushan/TATA or approved made & shade for existing Auction shed made out of Coloured coated **Galvalume Sheets 24 guage** with required accessories, Downspouts, flashings, ridges etc. of approved shade, design & Trapezoidal Hi-rib profile including all required machineries, scaffolding, labours, tools & plants. Sheets to be fixed by 16/19 mm bonded washer Zinc Tin Mechanical Coating Class 3 self-drilling screw of "Corroshield" make at required spacing etc. complete as directed by an architect. Payment should be made on the basis of sqmt. of actual erection only. Wastage & surplus material should not be measured or paid. All accessories shall be inclusive in rates.	100.00	Sq.mt.	₹ 715.00	₹ 71,500.00
54	Core Cutting for all Diametre & any beam including all required machinary As per directed by site incharge. Upto all floor.	15.00	Each	₹ 650.00	₹ 9,750.00
				Estimated Cost of Civil Part_A	**2,42,37,308.49**
	WATER SUPPLY AND SANITATION				
55	Providing and fixing Uropean type w/c with sit, cover fixing with comp. standard quality.without P or S trap including jointing the trap with soil pipe in Cement Mortar 1:1 (1-Cement : 1-fine sand) (A) vitreous China Pattern :(i) in white colour	25.00	NO.	₹ 1,784.00	₹ 44,600.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
56	Providing and fixing 100mm size P or S trap for water closet squatting pan including jointing the trap with the pan and soil pipe in cement Mortar 1:1 (1-Cement : 1-Fine sand)(A) Vitreous China. (FOR WC)	25.00	NO.	₹ 315.00	₹ 7,875.00
57	Health Faucet Jet Spray for Toilet Chrome Silver with PVC Hose pipe & HOOK Faucet Set (Wall Mount Installation Type)(For WC)	25.00	NO.	₹ 579.27	₹ 14,481.75
58	Flushing Valve Brass Cromium Platted push cock or handle type with flushing supply and fixing (FOR WC)	25.00	NO.	₹ 811.00	₹ 20,275.00
59	Providing and Fixing Dual Flush Tank Stong PVC Material Suitable for all WC (FOR WC)	25.00	NO.	₹ 890.00	₹ 22,250.00
60	Providing and fixing G.I. inlet connection for flush pipe with W.C. Pan (FOR WC)	25.00	NO.	₹ 16.80	₹ 420.00
61	Supply & Fixing White Porselin Urinal with require plastic waste pipe fitting and fixing.	6.00	NO.	₹ 1,558.00	₹ 9,348.00
62	Supply & Fixing of Polished on both sides of Kota Stone in thickness of 20-25 mm to fix as Urinal Curtain and as per instruction	8.00	Sqm	₹ 907.00	₹ 7,256.00
63	Providing & Fixing White porselin wash bassin 510/410mm indian make c.i. bracket with fitting cromium platted topes 25cm plastic waste pipe and 12mm pillar cock with comp.	32.00	NO.	₹ 1,261.00	₹ 40,352.00
64	Providing and fixing Kitchen SS Sink Glosy ASIS 304 Grade x 1mm thick with over all size 510x432mm & bowl size 445x368x190 including cutting holes in stone and making good the same including C P 32mm waste pipe .	2.00	NO.	₹ 2,240.00	₹ 4,480.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
65	Providing & fixing PVC SWR Nahani Trap IS 14735 for drain with jali of the 7.6 cm nominal diameter of self cleaning design with C.I. Screwed down or hinged grating including the cost of cutting and making good the walls.	42.00	No.	₹ 258.00	₹ 10,836.00
66	Providing and fixing Brass chromium plated screws down bib tap of 15mm nominal dia. of approved quality and brand.As per instruction given by engineer in charge.	43.00	No.	₹ 184.98	₹ 7,954.14
67	Providing and fixing pillar tap, capstan head, screw down high pressure with screws, shanks and back nuts. (i) 15mm dia.	5.00	No.	₹ 305.67	₹ 1,528.35
68	Providing and fixing Gun Metal Check or Non-return Fullway Wheel Valve. 40/50mm	4.00	No.	₹ 656.86	₹ 2,627.44
69	Providing and fixing Gun Metal Check or Non-return Fullway Wheel Valve. 32mm	6.00	No.	₹ 311.61	₹ 1,869.66
70	Providing and fixing Gun Metal Check or Non-return Fullway Wheel Valve. 25mm	16.00	No.	₹ 416.47	₹ 6,663.52

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
71	Providing laying and jointing in true line and level 50mm dia. (5.16 mm minimum wall thickness) U.P.V.C. Pipe (SCH- 40) for cold water including fittings make as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.	250.00	Rmt	₹ 164.46	₹ 41,115.00
72	Providing laying and jointing in true line and level 32mm dia. (5.16 mm minimum wall thickness) U.P.V.C. Pipe (SCH- 40) for cold water including fittings make as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.	150.00	Rmt	₹ 106.32	₹ 15,948.00
73	Providing laying and jointing in true line and level 25mm dia. (5.16 mm minimum wall thickness) U.P.V.C. Pipe (SCH- 40) for cold water including fittings make as approved by Engineer In Charge. Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.	254.00	Rmt	₹ 77.25	₹ 19,621.50
74	Providing laying and jointing in true line and level 15mm dia. (5.16 mm minimum wall thickness) U.P.V.C. Pipe (SCH- 40) for cold water including fittings make as approved by Engineer In Charge.	237.00	Rmt	₹ 43.62	₹ 10,337.94

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	Pipe shall be fixed on the wall with the help of clamp at every two metre C/C or shall be concelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent, including cost of all materials.				
75	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc.complete.[A] 15 mm.	150.00	Rmt	₹ 165.21	₹ 24,781.50
76	Providing and fixing concealed center point to wall ceiling & floor CPVC (SDR 13.5) PIPE having National Sanitation Foundation (NSF) seal for potable water of following dia. nominal bore tube fittings and clamps including making good the wall, ceiling and floor etc.complete.[A] 25 mm.	150.00	Rmt	₹ 247.25	₹ 37,087.50
77	Providing & laying P.V.C. Pipes (RIGID) - 6 Kg. ISI marked 160MM DIA. (OUTER) with special as per site condition with required jointing solution including hydraulic testing as approved & directed by engineer-in-charge	450.00	Rmt	₹ 541.00	₹ 2,43,450.00
78	Providing & laying P.V.C. Pipes (RIGID) - 6 Kg. ISI marked 110 MM DIA. (OUTER) with special as per site condition with required jointing solution including hydraulic testing as approved & directed by engineer-in-charge	528.00	Rmt	₹ 262.00	₹ 1,38,336.00
79	Providing & laying P.V.C. Pipes (RIGID) - 6 Kg. ISI marked 75 MM DIA. (OUTER) with special as per site condition with required jointing solution including hydraulic testing as approved & directed by engineer-in-charge	223.00	Rmt	₹ 127.00	₹ 28,321.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
80	Providing & laying P.V.C. Pipes (RIGID) - 6 Kg. ISI marked 50 MM DIA. (OUTER) with special as per site condition with required jointing solution including hydraulic testing as approved & directed by engineer-in-charge	228.00	Rmt	₹ 58.00	₹ 13,224.00
81	Providing and fixing in position cowel went to pipes.(C) 75mm dia	25.00	No.	₹ 60.00	₹ 1,500.00
82	Providing and fixing in position cowel went to pipes.(C) 100/110mm dia	45.00	No.	₹ 78.00	₹ 3,510.00
83	Chini gully trap approved quality supply with fitting and C.I. jali require size with fitting	25.00	No.	₹ 480.00	₹ 12,000.00
84	Gully(IC) Chamber as per 0.30 x 0.30 size & design upto 0.45 m depth with providing and fixing air tight C.I. Frame & Cover including foundation in C.C. 1:3:6, brick masonary in C.M. 1:3, benching, coping in C.C. 1:1:2 & plaster 1:3 inside & outside.	45.00	No.	₹ 954.00	₹ 42,930.00
85	Drainage House connection Brick Masonary Square/round Inspection Chamber Type as per Design (0.50 x 0.50) foundation P.C.C. in 1:3:6 with brick masonary cement mortar 1:4 and plaster cement mortar 1:3 and copping c.c 1:1:2 with benching c.c 1:2:4 and finishing, curing, etc complete. Including Excavation & excluding Precast Frame cover. From 0.45mt to 0.60mt. depth	20.00	No.	₹ 2,742.00	₹ 54,840.00
86	Drainage House connection Brick Masonary Square/round Inspection Chamber Type as per Design (0.50 x 0.50) foundation P.C.C. in 1:3:6 with brick masonary cement mortar 1:4 and plaster cement mortar 1:3 and copping c.c 1:1:2 with benching c.c 1:2:4 and finishing, curing, etc complete. Including Excavation & excluding Precast Frame cover. From 0.60mt to 0.75mt. depth	8.00	No.	₹ 3,374.00	₹ 26,992.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
87	Supply, fitting, fixing 600 X 600 mm RCC precast frame & cover etc. complete as per specification 5 ton.	28.00	No.	₹ 1,508.00	₹ 42,224.00
88	Providing erecting and fixing double coated PVC. (ISI) water tank of 2500 Lit. capacity each with all necessary fittings and connection etc. complete on terrace.	3.00	No.	₹ 33,293.00	₹ 99,879.00
89	Cinder filling in sunk of toilet wash as specified	21.00	Cu.Mt.	₹ 820.00	₹ 17,220.00
Estimated Cost of Water supply and Sanitation Part - B Total					**₹ 10,76,134.30**
Estimated Cost without GST (Civil + Plumbing) (Part_A+B)					**₹ 2,53,13,442.79**

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
Electric Item					
1	Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length , in below type of pipe erected with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed.(a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling completeCat. III	197.00	Pt.	₹ 489.00	₹ 96,333.00
2	Point wiring for Modular secondary light point with 2-1.5 sq.mm & earth wire of 1.5	20.00	Pt.	₹ 121.00	₹ 2,420.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	sq.mm (green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires, in below type of pipe to be erected complete with earth continuity and necessary connection with primary light with accessories erected on Metal / PVC / wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic sheet for open / concealed wiring. with necessary Lamp holder / ceiling rose / H.D.Connector as directed.(a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling complete Cat-III				
3	Point wiring for Two Way Controlled Light Point with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (green) both are of .ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires erected in below type of pipe with 6A Modular type switches and following type of accessories erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary batten/angle holder or ceiling rose or H.D.Connector as directed.(a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling complete Cat. III	3.00	Pt.	₹ 525.00	₹ 1,575.00
4	Point wiring for FAN with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of .ISI marked 1.1 KV Grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected with 6A Modular type switch and hum free EME	65.00	Pt.	₹ 699.00	₹ 45,435.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	step type electronic fan regulator mounted and accessories with earth continuity of following type erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary ceiling rose / H.D.Connector as directed.(a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling completeCat. III				
5	Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade FRLS PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories.[I] For 6A Plug and 6 a switch with 2-1.5 sq.mm Cu. Wire from nearby switchboard/mcb db board (a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling complete Cat. III	48.00	Pt.	₹ 519.00	₹ 24,912.00
6	[II] For 16A Plug and 16 amp switch with 2-2.5 sq.mm Cu. Wire from mcb db board. (a) with medium class Rigid PVC pipe and accessories erected flushed on wall/ceiling complete Cat. III	16.00	Pt.	₹ 781.00	₹ 12,496.00
7	Point wiring for on board Looped Plug with 6A Modular type switch & 5 pin socket erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured / metallic/white	55.00	Pt.	₹ 281.00	₹ 15,455.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	front plate modules erected on / in wall / ceiling with following type accessories Cat. III				
8	Providing following type of Modular Type Accessories mounted with PVC / metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate , modules erected with necessary connections as per site situation directed by Engineer In charge.(8) Computer RJ-45 socket Cat.III	17.00	Ea.	₹ 178.00	₹ 3,026.00
9	Providing and erecting ISI mark Medium class RIGID PVC PIPES of following size complete to be erected on/in wall or ceiling erected with necessary PVC fittings & Junction boxes fixed with adhesive solution & Clamps with following dia of pipes, in approved manner as directed (a)20 mm	100.00	Mtr.	₹ 26.00	₹ 2,600.00
10	(b) 25 mm	50.00	Mtr.	₹ 36.00	₹ 1,800.00
11	Providing & erecting PVC Corrugated Flexible Conduit with required nos. of coupling, PVC bushes, Check-nuts etc. complete of following sizes. (1) 20 mm	10.00	Mtr.	₹ 18.00	₹ 180.00
12	Providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (A) With medium class Rigid PVC pipe and accessories (b) 2 wire 2.5 sq. mm	1100.00	Mtr	₹ 90.00	₹ 99,000.00
13	providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in	100.00	Mtr.	₹ 123.00	₹ 12,300.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	following type of pipe to be erected in / on wall / ceiling with 2.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (A) with medium class Rigid PVC pipe and accessories (a) 2 wire 4 sq. mm				
14	(i) 4 wire 10 sq. mm (use earth wire of 4 sq.mm)	50.00	Mtr.	₹ 472.00	₹ 23,600.00
15	Supplying & erecting approved make LAN cable of following size in existing pipe as per direction [C] CAT - 6	680.00	Mtr.	₹ 51.00	₹ 34,680.00
16	Call bell gong type suitable for 230 volts, 50 c/s. AC supply complete Erected	9.00	Mtr.	₹ 45.00	₹ 405.00
17	Providing & erecting Switch board for Computer or electric apparatus consisting of following modular type accessories mounted with PVC / Metallic concealed/open box with single mounting base frame covered with textured/metallic /white front plate,modules erected with necessary connections as directed 1 no. 6A/16A universal plug-switch combined. 3 nos. 6A Switch 3 nos. 6A 5 pin Plug For Modular Type AccessoriesCat. III	17.00	Ea.	₹ 1,262.00	₹ 21,454.00
18	Supplying and erecting LED indoor fittings with LEDs of wattage 0.2 Watt to 0.5 Watt assembled on single MCPCB, with housing used as a heat sink shall be made of thick sheet Steel conforming to IS: 513/CRCA/ aluminium die cast powder coated and high U.V. & corrosion resistance with diffuser with company mark/name 160V to 270V, Power Factor more than 0.95, THD < 15%,CCT 3000 K to 6500K, Luminaire efficacy> 85 lumens/watt ,LED LED driver	125.00	Ea.	₹ 345.00	₹ 43,125.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	efficiency > 85 %(fitting required LM-79 & LM-80 Certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) (A) Tube Light with integral driver (iii) 18-20 Watts, Surge - 2KV,IP-20, conventional 4 feet Cat-lll				
19	(A) Tube Light with integral driver (i) 5-10 Watts, Surge-2 KV, IP-20, conventional 1 to 2 feet Cat-lll	41.00	Ea.	₹ 192.00	₹ 7,872.00
20	Supplying and erecting LED street light / Flood light fittings with High power White LEDs wattage of 3 Watt and above assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses, with toughened glass with company mark/name engraved or embossed 160 to 270 V,Power Factor more than 0.95, THD < 10 %, CCT 3000 K to 5700K,Uniformity ratio >0.45, Luminaire efficacy> 100 lumens/watt . LED driver efficiency > 85 %.(fittings required LM-79 & LM-80 certificates)(NOTE: Below description have shown ranges of Wattage capacity of LED fittings.The Engineer incharge may select any wattage capacity between the ranges shown.) (A) Street Light (IP-65), Surge protection -4KV integral and ,Light must have 440VAC line supply with over-voltage protection. (iii) Above 60 to 90 watts Cat-lll	6.00	Ea.	₹ 6,981.00	₹ 41,886.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
21	providing and erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark Cat.III	30.00	Ea.	₹ 130.00	₹ 3,900.00
22	Providing & erecting 415V MCB Four Pole Switch for Lighting Load (B curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (b)40 Amp. Cat.III	4.00	Ea.	₹ 745.00	₹ 2,980.00
23	Providing & erecting 240 V MCB double pole switch for lighting Load (B Curve) having 10 KA breaking capacity & confirms to IS : 8828 in existing box having following capacity (B) 40 Amp. Cat.III	6.00	Ea.	₹ 345.00	₹ 2,070.00
24	Sheets steel powder coated enclosure suitable for incorporating One/Two nos. MCB.	12.00	Ea.	₹ 205.00	₹ 2,460.00
25	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for (B) three phase incoming and single phase horizontal type outgoing Per phase isolation type (PPI)(b) sheet steel double door (ii)6 way	4.00	Ea.	₹ 3,403.00	₹ 13,612.00
26	providing and erecting Approved make RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 10 KA and suitable for operation on single phase 240	4.00	Ea.	₹ 2,610.00	₹ 10,440.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	V,50Hz. having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component. for following Max. rating erected as directed (ii) 40Amps. DP Cat. III				
27	Providing and erecting Approved make Four pole moulded case circuit breaker having breaking capacity ICU of 25 KA. at 415 V,having normal current rating up to 25 A to 100A. with Fixed thermal & magnetic release suitable to work on A.C. supply 50 c/s. with all internal connections, spreader tinned copper & complete erected in existing 16 G.M.S. housing. ICS=100% of ICU only Cat III	2.00	Ea.	₹ 7,210.00	₹ 14,420.00
28	Supplying and erecting triple pole & neutral 440V / 500V panel mounting Copper Busbars with four equal Nos. of electrolyte bus having current density not more than 1.6 Amp. / sq.mm (Rated current / cross section area) duly wrapped with colour insulating tape for phase sequence of following current carrying capacity, erected with necessary bus bar supports /insulators, main cable socket to each bar, erected in existing cubical panel with necessary connections.(A) Suitable for 100 Amp. Capacity	2.00	Rn.Mtr	₹ 2,290.00	₹ 4,580.00
29	Providing & erecting weather proof, dust & vermin proof, floor mounted front operated indoor type cubical panel board necessary IP-42 and above protection as per approval from engineer incharge made from 14 SWG thick CRC M.S. sheet for outer body & doors, 16 SWG thick CRC M.S.sheet for internal partitions with necessary accesories , supporting angles/	5.00	Sq.Mtr	₹ 12,230.00	₹ 61,150.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	flats channel including cutting, bending, drilling, welding, riveting with internal partitions & cable alley as per requirements & instruction of engineer-in-charge with erection of supplied switch gears, BUSBARS, suitable size of inter connecting PVC copper wire / copper-aluminium strips, rubber grommets, rib, bakelite control fuses/MCB for measuring instruments, earth bus & earth bolts, foundation flange - bolts-base Plates, sufficient nos. of hinged doors, handles with locking arrangement and rubber gasket,heavy duty end terminal connection,danger notice board,necessary ventilation,earthing strip complete. The Panel shall be painted with epoxy powder coating. (The rates excludes the cost of switchgears, bus bars, inter connecting mains & Copper Aluminium strips, meters, Fuses etc. The dimension shall be measured excluding base beams) The panel shall be supplied with following approved manufacturers with following size.(A) locally fabricated panel board (i) with 350 mm depth				
30	Supplying & erecting in earthpit of minimum bore dia. 225mm size approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free hot dipped G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanising, Inner pipe dia of 40 mm having 200-250 Micron galvanising, connection terminal dia of 14 mm with constant ohmic value surrounded by highly	6.00	Sq.Mtr	₹ 6,825.00	₹ 40,950.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	conductive compound with high charge dissipation suitable for following type of applications with chamber and heavy duty cover.(approved make OEM has to submit test certificate including value of earth resistane of installation.[A] For electrical installation up to 440 VLength of Pipe - 1 MtrBack filling compound - 1 Nos. of Bag of 15 Kgs.				
31	Providing and erecting Annealed bare Copper wire 8 to 16 SWG.	6.00	Kg.	₹ 928.00	₹ 5,568.00
32	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (B) 3 1/2 core 35 Sq. mm (16 Sq. mm 1/2 core) (Between Floor SubPanel Feeding Cable)	75.00	Mtr.	₹ 252.00	₹ 18,900.00
33	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (A) 2 Core 2.5 Sq.mm.	220.00	Mtr.	₹ 205.00	₹ 45,100.00
34	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand / Solid Copper conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cables. (B) 4 core 4 Sq. mm (Pump Supply Cable)	100.00	Mtr.	₹ 422.00	₹ 42,200.00
35	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following	48.00	Ea.	₹ 37.00	₹ 1,776.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	size of cables. (b) 2 to 4 core 4 Sq. mm				
36	(c) 2 to 4 core 6 Sq. mm	24.00	Ea.	₹ 43.00	₹ 1,032.00
37	(d) 2 to 4 core 10 Sq. mm	88.00	Ea.	₹ 43.00	₹ 3,784.00
38	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (B) 3 & 1/2 core 35/50 Sq. mm	10.00	Ea.	₹ 87.00	₹ 870.00
39	Solderless crimping type Copper lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (A) 1.5/2.5 to 6 Sq.mm	48.00	Ea.	₹ 9.00	₹ 432.00
40	(B) 10 Sq.mm	88.00	Ea.	₹ 11.00	₹ 968.00
41	(E) 35/50 Sq.mm.	80.00	Ea.	₹ 24.00	₹ 1,920.00
42	Supplying and erecting approved make Octagonal pole made from HR sheet steel. The pole should be made as per IS. and shall be coated with hot dip galvanizing as per IS 2629/2633/4759, suitable suspend local wind speed with integral Junction box consist of terminal plate of min 6mm Hylam sheet, standard profile 35mmX7.5mm Din-Rail for MCB Mounting, stud type terminal and arrangement for cable termination to be erected With Suitable foundation (Included) as per details given by manufacturer considering site requirement.	0.00			₹ -
43	(D) 6 Mtr. Long 70 mm Top X 135 mm bottom dia, 3 mm thickness with 200mm X200mm X12mm	6.00	Ea.	₹ 9,570.00	₹ 57,420.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	base plate, 4-M20 Bolts and 600mm long with necessary G.I. J Bolts. Approx Pole weight 59 kg				
44	Supplying and erecting Street light pole bracket comprising main B Class MS pipe of 4.2 cm/require outside dia. complete with suitable B Class M.S. sleeve tubing of approx. 45cms.length and suitable for 76.5mm/80mm/require size of pole top having nuts and bolts for fixing the brackets and having spread of 0.5 mtr. Length with 110 deg.with vertical plane and suitable welded stiffener reducer and nipple with check nut complete painted with one coat.of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms. [A] Single Arm bracket 0.5 Mtr	6.00	Ea.	₹ 573.00	₹ 3,438.00
45	Providing & erecting Approved make Power Saving 50 Watt Ceiling Fan with double ball bearing ISI mark with Condenser 230 volt A.C. 50 Hz 1200 mm sweep complete having 3blades with aluminium blades with , canopy & 30 cms. down rod erected with 24/ 0.2, 3 core flexible wire with earthing.(Make shall be approved by Engineer in charge))	65.00	Ea.	₹ 2,275.00	₹ 1,47,875.00
46	Supplying and erecting 19 / 20 mm. nominal bore Medium Class M.S. Pipe down rod erected duly painted for fan complete with necessary 24/ O.20, 3 core flexible wire with earthing.	33.00	Mtr.	₹ 125.00	₹ 4,125.00
47	Supplying & erecting fan hook box of 10 mm M.S. round bar bounded to the RCC bars up to 50mm length each side and pierced through a 16 Gauge M.S. box / Heavy Duty PVC box complete erected concealed in Ceiling with necessary finishing.	65.00	Ea.	₹ 125.00	₹ 8,125.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
48	Providing 2.5mm thick laminated acrylic sheet to cover the fan hook or Fan box.	65.00	Ea.	₹ 20.00	₹ 1,300.00
49	Providing & erecting fresh air fan 250 mm dia with square frame make of ABS body with louvers Cat.II	24.00	Ea.	₹ 1,820.00	₹ 43,680.00
50	Providing recess in wall or window frame suitable for erection of Exhaust fan complete with plastering and colour washing to match the colour of the wall or window complete with expanded metal in order to render the fitting in accessible and the room water-proof.	24.00	Ea.	₹ 220.00	₹ 5,280.00
51	Supplying and erecting approved make oscillating type bracket fan A.C. 23OV. 50cy/s 400/450 mm sweep wall mounted with height adjustment and rotary tilting device complete with guard, flexible Core plug top complete erected with lead wires as directed. Cat.II	9.00	Ea.	₹ 2,960.00	₹ 26,640.00
52	Providing and erecting Inverter based approved make split air-conditioning unit consisting of condensing unit with variable speed fan motor, inverter type hermetically sealed rotary compressor with accessories etc. duly connected separately erected evaporating unit and blower motor with its accessories by means of extra supplied proper insulated copper tubing, drain PVC pipes suitable for (cost includes Eco Friendly green gas charging and 15A plug top & Remote Control & MS Stand) with necessary core cutting.(2)For 4/5 Star Rating of current year (B) for 1.5 ton capacity	4.00	Ea.	₹ 50,500.00	₹ 2,02,000.00
53	(C) for 1.7 to 2 ton capacity	1.00	Ea.	₹ 66,500.00	₹ 66,500.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
54	Providing & erecting water cooler having storage capacity 150 Ltr. & cooling capacity 150 Ltr.per hour @ an ambient temp of 450 C. The outlet temp. of the water should drop by 150C within a hour, The water cooler should be comprising of hermetically sealed compressor, fan motor, condensing unit, water tank surrounded by evaporating, coil, thermostats, relay etc.complete with necessary inlet & outlet connection. The body of water cooler will be made from Stainless Steel.	1.00	Ea.	₹ 54,500.00	₹ 54,500.00
55	Supplying & erecting reverse osmosis (RO) water purification system with M.S. powder coated pedestal frame, prefilter housing carbon filter suitable buster DC pump, auto low & high pressure switches with following size of LPH capacity & erected as directed [D] 100 LPH with 1 phase / 3 phase Raw water pump of 500LPH @ 2.5kg/cm2 - (1N0 - Kirloskar /CRI/Lubi), Dual media filter 10"x54" - (1 No), Micron cartridge filter 20" x 2.5" (1No), High pressure pump 500LPH @ 10kg/cm2 - (1No - Shimge /CRI /Lubi), RO Membrane housing with RO membrane of 40*40 - (1No), RO pressure tube 4" x 1E - (1No), 0 - 1200LPH Rotameter -(2 Nos), with Recovery Rate 50%.	1.00	Ea.	₹ 76,000.00	₹ 76,000.00
56	Providing & erecting open well horizontal mono block pump set with cast iron body, complete for three phase submersible motor having[C] For 3 HP 3 phase open well horizontal mono block pump set suitable for 85 LPM to 270 LPM @ 11 mtr to 33 mtr head suitable for 50/65 mm dia delivery pipe Cat-III	1.00	Ea.	₹ 18,350.00	₹ 18,350.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
57	Supplying & erecting approved make motor control cubical panel (Direct - on - line) made from 16 G. CRCA sheet duly epoxy powder painted inside and outside with hinged doors and locking, arrangement consisting of suitable size of ON-OFF isolator (AC - 3/23duty) main fuses, single phasing preventer, indicating lamps for R- Y - B phases, overload relay, Automatic water level controller, Ammeter, Voltmeter each with two way selector switch incoming, wires duly socket crimped, main contactor & overload relay, start - stop push buttons, to be erected on angle iron frame grouted on wall as directed. The isolator, overload relay & contactors will be of L & T, Siemens or BCH make only. (A) DOL up to 5.0 H.P.	2.00	Ea.	₹ 9,020.00	₹ 18,040.00
58	S.I.T.C. submersible pump set suitable for bore of 150 mm. dia. or more having three phase motor capacity not more than 5 H.P. with following capacity . Lifting and Lowering taken extra.(B) (5 stage) 410 to 350 LPM discharge at 40 to 36 mtrs. head respectively suitable for 50mm dia. delivery pipe Cat.III	1.00	Ea.	₹ 32,106.00	₹ 32,106.00
59	Lowering of submersible motor pump set at the depth of following, complete with required. Nos. and size of casing pipes erected by means of proper chain pulley block & pipe wrenches after checking of threads of each pipe with coupling to take the load of the pump set and pipe assembly filled up with water (C)Above 120 mtr.	1.00	Per Job	₹ 3,500.00	₹ 3,500.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
60	(D)For Open well Horizontal submersible pump set for sump well (i) 1 HP to 5 HP	1.00	Per Job	₹ 1,000.00	₹ 1,000.00
61	Providing and erecting ISI marked PVC insulated PVC Sheathed Flat flexible Submersible copper cable approved make of following Size. (C) 3 Core x 4 Sq. mm	180.00	Mtr	₹ 170.00	₹ 30,600.00
62	Supplying & erecting UPVC heavy duty Flanges with rubber packing and hardware materials for pipe connections suitable for (A) 50 mm (2")	3.00	Ea	₹ 185.00	₹ 555.00
63	Supplying and erecting ISI marked sluice valve at position with necessary material for following size of pipe diameter.(D) 50 mm(2")	3.00	Ea	₹ 938.00	₹ 2,814.00
64	Supplying, & erecting C.I. swing, check type non-return (Reflux) Valve -ISI marked suitable for following size (A) 50 mm dia.	2.00	Ea	₹ 1,190.00	₹ 2,380.00
65	Supplying of following size of HEAVY UPVC column pipe with coupler and wire lock[B] 50 mm dia	275.00	RMT	₹ 420.00	₹ 1,15,500.00
66	Supply of following size of TOP & BOTTOM accessories i.e. Adaptor set (CI) long, pump guard set, starter pipe Rubber ring for submersible pump & UPVC column pipe as directed by Engineer - in - charge with necessary plumbing as desired.[D] 50 mm dia	3.00	Per Set	₹ 1,740.00	₹ 5,220.00
Total Estimated Cost of Electric without GST Part-C					**₹ 16,94,614.00**
Fire Fighting Items					
1	Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump) 450 lpm at 35 m Head	Nos	1.00	₹ 76,914.00	₹ 76,914.00
2	Providing, laying, testing & commissioning of 'C' class heavy	Mtrs	15.00	₹ 1,012.00	₹ 15,180.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : 80mm dia				
3	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required : 80 mm dia.	Nos	1.00	₹ 6,799.00	₹ 6,799.00
4	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required : 80 mm dia.	Nos	1.00	₹ 4,366.00	₹ 4,366.00
5	Providing & fixing of pressure switch in M.S. pipe line including connection etc. as required.	Nos	1.00	₹ 1,360.00	₹ 1,360.00
6	Providing and Fixing H GURU Analog Air Pressure Gauge, for Industrial, Model Name/Number: 3psssw2 et. Complete as directed by engineer in-charge.	Nos	1.00	₹ 1,150.00	₹ 1,150.00
7	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle. Drum and brackets for fixing the equipmets on wall.	Nos	2.00	₹ 7,587.00	₹ 15,174.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket. 17.1 30 m				
8	Supply, Installing, Testing & Commissioning of 25 mm S.S. 304 grade Ball valve of approved made for Entire System with nipple fitting material, flange, gasket etc. necessary complete. (Each Landing in Hose Reel)	Nos	2.00	₹ 1,380.00	₹ 2,760.00
9	M.S. STEEL STRUCTURE: Providing, Supplying, fabricating & painting of steel structure made out of TATA / Asian / Appolo or approved make for RHS/SHS, M.S. Tubular hollow sections,column, bracing, truss, purlin, rafter, cleat, bracings members, base plate, anchor bolts, stiffner plate etc. are as per drawings. Anchor bolts should be non-corrosive paint of approved made, make & as per Drawing. Other steel & metal members should be painting with priming coat and two coats with enamel paint of approved made & shade, brushing or spraying, interior to give an even shade including cleaning the surface an even shade and all dirt, dust and other foreign matter etc. including all labour cost, tools & tackales, welding rods & welding machines, hire charges of crane, erection charges up to all height at site as per Drawing and also loading, unloading, transportation, all taxes, FoR at work site etc. completed as directed. Payment should be made on the basis of Kg. (as per certified weigh slip of GSRTC & as per mode of measurement specified in IS) of actual erection material at site only. Wastage should not be measured / weighed or paid. MS frame structure for covering	kgs	100.00	₹ 127.00	₹ 12,700.00

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
	pump and panel equipments on terrace				
10	Supplying & erecting approved make 3 phase motor control cubical panel (Star - Delta) made from16 G. CRCA sheet duly painted with epoxy powder painted inside and outside with hinged doors and locking arrangement, consisting of suitable size of ON- OFF isolator (AC - 3/23 duty) main fuses, single phasing preventer cum water level. Guard (Complete unit), Toggle switch to bypass Single phase preventer cum WLG, indicating lamps for R- Y- B phases, over load relay, Automatic water level controller, Ammeter & Voltmeter each with two way selector switch incoming wires duly socket Crimped, Panel to be erected on angle iron frame grouted on wall as directed. Star Delta & main contactor, overload relay, thermal / Electronic Star delta cutoff timer, start - stop push buttons. The isolator overload relay & contactors of L& T, Siemens or Cuttler Hamer make only. Panel to be erected on angle iron frame ground on wall.	Nos.	1.00	₹ 14,334.00	₹ 14,334.00
	FIRE APPLIANCES				
11	Supplying & erecting carbon dioxide (CO2) fire extinguisher user of following capacity with necessary clamps made from 50 x 6 mm M.S. Flat with nut & bolts grouted in wall complete. [A] For 4.5 Kg Capacity	Nos	15.00	₹ 6,900.00	₹ 1,03,500.00
12	Providing and Fixing A B C Dry Powder Type Mild Steel ABC Dry Powder Fire Extinguisher, Capacity: 6 Kg etc. complete as directed by engineer in-charge.	Nos	15.00	₹ 1,725.00	₹ 25,875.00
	FIRE ALARAM SYSTEM / ADDRESABLE SYSTEM				

No.	Particulars	Estimated Qty.	Unit	Rate	Estimated cost
13	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (F) 3 core 4 Sq. mm	MTR	300.00	₹ 196.00	₹ 58,800.00
14	Supply, Installing, Testing & Commissioning of Fire Hotter, manual call point and ON - OFF switch with PVC pipe, wire and panel for hotter and call point etc. complete	Nos	2.00	₹ 12,393.00	₹ 24,786.00
Total Estimated Cost of Fire Safety without GST Part-D					**₹ 3,63,698.00**

Recap

Total Estimated Amount of Civil Part – A	**₹ 2,42,37,308.49**
Total Estimated Amount of Plumbing Part - B	**₹ 10,76,134.30**
Total Estimated Amount of Electric Part - C	**₹ 16,96,614.00**
Total Estimated Amount of Fire Safety Part - D	**₹ 3,63,698.00**
(without GST) Total Estimated Amount of Civil + Plumbing + Electric (A+B+C+D)	**₹ 2,73,73,754.79**
Say	**₹ 2,73,74,000.00**
(Rupees Two crore Seventy-three lacs Seventy-four thousand only)	

Addl/Asst. Engineer
R.M.C.

Dy. Ex. Engineer
R.M.C.

ADDL. CITY ENGINEER
R.M.C.

I/We agree to carry out the above said work at (to be quoted online) % Equal / above / below on the tendered rates shown in Schedule.

Signature of Contractor with Seal

રાજકોટ મહાનગર સેવાસદન

ડો. આંબેડકર ભવન, ઢેબરભાઈ રોડ, રાજકોટ – ૩૬૦ ૦૦૧.

વેબસાઈટ : www.rmc.gov.in

રા.મ્યુ.કો./વીજી.ટેક./જા. નં. ૧૦૨ ૨૮/૮/૧૮ તા. ૨૮/૮/૨૦૧૮

પરિપત્ર:-

- રાજકોટ મહાનગરપાલિકામાં ત્રણ ઝોન (ઇસ્ટ, સેન્ટ્રલ, વેસ્ટ) માં ઝોનલ કામમાં કે ટેન્ડરથી થતા કામમાં પેવર બ્લોકની કામગીરી કરવામાં આવે છે. જેથી, ક્વોલીટી કન્ટ્રોલ માટે પેવર બ્લોકની કામગીરીમાં વપરાશ કરવામાં આવતા પેવર બ્લોકનું ટેસ્ટીંગ કરવું જરૂરી હોય, વોર્ડમાં ઝોનલ કામ, ટેન્ડર કામ તેમજ વિવિધ શાખા હસ્તક ચાલતા પ્રોજેક્ટ કામમાં વપરાશ કરવામાં આવતા તમામ પ્રકારના પેવર બ્લોકના કામમાં કામ કરાવનાર RMC ટેકનીકલ ટીમ દ્વારા IS 15658:2006 મુજબ Government લેબોરેટરી કે Government માન્ય લેબોરેટરીમાં હાજરીમાં ફરજીયાતપણે ટેસ્ટીંગ કરાવવાનું રહેશે.
- આ ઉપરાંત, રાજકોટ મહાનગરપાલિકાની, વિવિધ શાખા હસ્તક ચાલતાં બાંધકામ તથા રસ્તાકામને લગત, દરેક મહત્વના પ્રોજેક્ટના અગત્યનાં તબક્કે કામગીરી કરાવનાર પ્રોજેક્ટ એક્ઝીક્યુશન ટેકનીકલ ટીમ દ્વારા આગળના દિવસે વિજીલન્સ (ટેક.) ટીમને SMS/Whatsapp થી જાણ કરવામાં આવે છે. તે જ રીતે પેવર બ્લોક બાબતે RMC એક્ઝીક્યુશન ટેકનીકલ ટીમ દ્વારા હાલ ચાલુ હોય તેમજ હવે પછી થનાર તમામ પેવર બ્લોકના કામો માટે આગળના દિવસે વિજીલન્સ (ટેક.) ટીમને SMS/Whatsapp થી જાણ કરવાની રહેશે. જે અન્વયે વીજીલન્સ શાખા (ટેક.) દ્વારા રેન્ડમ સેમ્પલીંગ કરી, IS 15658:2006 મુજબ Government લેબોરેટરી કે Government માન્ય લેબોરેટરીમાં હાજરીમાં ફરજીયાતપણે ટેસ્ટીંગ કરાવી, અત્રે રીપોર્ટ કરવાનો રહેશે.

ઉપરોક્ત બાબતની અમલવારી તાત્કાલિક અસરથી ચુસ્તપણે કરવાની રહેશે.

કમિશ્નર
રાજકોટ મહાનગરપાલિકા

નકલ રવાના (જાણ તથા અમલવારી અર્થે)
- નાયબ કમિશ્નરશ્રી (ઇસ્ટ, સેન્ટ્રલ, વેસ્ટ-ઝોન)

નકલ રવાના (અમલવારી અર્થે)-
- તમામ સીટી એન્જીનીયરશ્રી, એડી. સીટી એન્જીનીયરશ્રી, એક્ઝીક્યુટીવ એન્જીનીયરશ્રી

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રાજકોટ મહાનગરપાલિકા

ડો. આંબેડકર ભવન, ઢેબર રોડ, રાજકોટ – ૩૬૦૧૧૦.

વેબસાઈટ : www.rmc.gov.in

આર.એમ.સી./સી./ તા.૨૩/૧૨/૨૦૧૮

પરીપત્ર-: રા.મ્યુ.કો./વિજી./જા.નં. ૧૮૦ ૨૩/૧૨/૨૦૧૮

- રાજકોટ મહાનગરપાલિકામાં ત્રણ ઝોન (ઇસ્ટ, સેન્ટ્રલ, વેસ્ટ) માં ઝોનલ કામમાં કે ટેન્ડરથી થતા કામમાં પેવર બ્લોકની કામગીરી કરવામાં આવે છે. જેથી, ક્વોલીટી કન્ટ્રોલ માટે પેવર બ્લોકની કામગીરીમાં વપરાશ કરવામાં આવતા પેવર બ્લોકનું ટેસ્ટીંગ કરવું જરૂરી હોય, રા.મ્યુ.કો./વીજી. (ટેક.)/જા.નં.-૧૦૨, તા.૨૯/૦૮/૨૦૧૮ થી વોર્ડમાં ઝોનલ કામ, ટેન્ડર કામ તેમજ વિવિધ શાખા હસ્તક ચાલતા પ્રોજેક્ટ કામમાં વપરાશ કરવામાં આવતા તમામ પ્રકારના પેવર બ્લોકના કામમાં ફરજીયાતપણે ટેસ્ટીંગ કરાવવા માટે પરીપત્ર કરવામાં આવેલ છે.
- જે પરીપત્ર અન્વયે આ પરીપત્રથી હવે પછી કરવાનાં થતા તમામ ટેન્ડર કામ તેમજ નવા ઝોનલ કોન્ટ્રાક્ટના કામોમાં નીચે પ્રમાણે યુસ્ત અમલવારી કરવાની રહેશે.
- આ પરીપત્ર પહેલાના કોઇપણ ઝોનલ કે ટેન્ડર કામ માટે જે તે Grade ની સાપેક્ષ પરિણામ ન મળે તો જે તે મળેલ પરિણામ પ્રમાણે Rate Reduce કરવાનાં રહેશે.
- કોઇપણ Grade ના પેવર બ્લોક માટે Compressive Strength નું સરેરાશ પરિણામ 10% કરતા વધારે ઓછું (દા.ત. M-30 Grade માટે Compressive Strength 27 N/mm² થી ઓછી) મળશે તો તે પેવરબ્લોક Reject કરવામાં આવશે એટલે કે તેમનું Payment કરવામાં આવશે નહિ.
- કોઇપણ Grade ના પેવર બ્લોક માટે Compressive Strength નું સરેરાશ પરિણામ 10% ની મર્યાદામાં ઓછું (દા.ત. M-30 Grade માટે Average Compressive Strength 27 N/mm² થી 29.99 N/mm² ની વચ્ચે) મળશે તો તે પેવરબ્લોક માટે Minimum 5 % તેમજ Maximum 10% મળેલ Average Compressive Strength પ્રમાણે Rate Reduce કરવાનાં રહેશે.
- કોઇપણ Grade ના પેવર બ્લોક માટે Water Absorption નું સરેરાશ પરિણામ 6% થી વધારે આવશે તો તે પેવરબ્લોક Reject કરવામાં આવશે એટલે કે તેમનું Payment કરવાનું થશે નહિ.

Compressive Strength માટે કુલ ૮ પેવર બ્લોકનું ટેસ્ટીંગ કરવાનું રહેશે જે ૮ પેવર બ્લોક (ગ્રેડ મુજબ સરેરાશ પરિણામ મળશે તો પણ) પૈકી જો ૧ થી ૨ Individual Sample નું પરિણામ ૪૫% કરતા ઓછું મળશે તો 10% Rate Reduce કરવામાં આવશે તેમજ ૮ પેવર બ્લોક પૈકી જો ૨ થી વધારે Individual Sample નું પરિણામ ૪૫% કરતા ઓછું મળશે તો તે પેવરબ્લોક Reject કરવામાં આવશે એટલે કે તેમનું Payment કરવામાં આવશે નહિ.

- ૧૨.૦૦ મી. કે તેથી મોટા રોડના Side Shoulder માટે M-30 Grade (ISI Mark) Rubber Mould Paving Block વાપરવાના રહેશે. ૧૨.૦૦ મી. થી નાની પહોળાઈના રસ્તાઓ પર Side Shoulder માં M-30 Grade (ISI Mark) Non Rubber Mould Paving Block વાપરવાના રહેશે.
- પહોળાઈમાં ૫.૦૦ મી. કે તેથી ઓછી પહોળાઈ વાળી શેરી હોય ત્યાં જ આખી શેરીમાં Paving Block ની કામગીરી કરી શકાશે.જનભાગીદારી યોજના હોય ત્યાં ૫.૦૦ મી. કે તેથી વધુ પહોળાઈ વાળી શેરીમાં Rubber Mould Paving Block ની કામગીરી કરી શકાશે.
- આ પરીપત્રને ટેન્ડરના એક ભાગ તરીકે રાખવાનો રહેશે.

ઉપરોક્ત બાબતની અમલવારી તાત્કાલિક અસરથી ચુસ્તપણે કરવાની રહેશે.

Md P.

કમિશ્નર
રાજકોટ મહાનગરપાલિકા

નકલ રવાના (જાણ તથા અમલવારી અર્થે)

- નાયબ કમિશ્નરશ્રી (ઇસ્ટ, સેન્ટ્રલ, વેસ્ટ ઝોન)

નકલ રવાના (અમલવારી અર્થે)

- તમામ સીટી એન્જીનીયરશ્રી, એડી. સીટી એન્જીનીયરશ્રી, એક્ઝીક્યુટીવ એન્જીનીયરશ્રી, એન્વાયરમેન્ટ એન્જીનીયરશ્રી (S.W.M.)
- ડી.ઇ.ઇ.શ્રી (વીજીલન્સ શાખા – ટેક.)

રાજકોટ મહાનગરપાલિકા

ડો. આંબેડકર ભવન, ઢેબર રોડ, રાજકોટ – ૩૬૦૧૧૦.

વેબસાઈટ : www.rmc.gov.in

આર.એમ.સી./સી./ રા.મ્યુ.કો./વિજી./જા.નં. ૯૭ તા. ૧૮/૦૭/૨૦૧૯

સંદર્ભ:- પરીપત્ર રા.મ્યુ.કો./વીજી./જા.નં.-૧૮૦, તા.૨૭/૧૨/૨૦૧૮.

સુધારા પરીપત્ર-:

- રાજકોટ મહાનગરપાલિકામાં ત્રણ ઝોન (ઇસ્ટ, સેન્ટ્રલ, વેસ્ટ) માં ઝોનલ કામમાં કે ટેન્ડરથી થતા કામમાં પેવર બ્લોકની કામગીરી કરવામાં આવે છે. જેથી, ક્વોલીટી જળવાય તે માટે પેવર બ્લોક માટે સંદર્ભથી પરીપત્ર કરવામાં આવેલ. જેના બદલે નીચે પ્રમાણે સુધારા પરીપત્ર કરવામાં આવે છે.
- સંદર્ભમાં દર્શાવેલ પરીપત્ર પહેલાના કોઇપણ ઝોનલ કે ટેન્ડર કામ માટે પરિણામ ન મળે તો જે તે મળેલ પરિણામ પ્રમાણે Rate Reduce કરવાનાં રહેશે.
- સંદર્ભમાં દર્શાવેલ પરીપત્ર પછીના તમામ નવા ટેન્ડર કામ તેમજ નવા ઝોનલ કોન્ટ્રાક્ટના કામોમાં નીચે પ્રમાણે યુસ્ત અમલવારી કરવાની રહેશે.
- કોઇપણ Grade ના પેવર બ્લોક માટે Compressive Strength નું સરેરાશ પરિણામ 10% કરતા વધારે ઓછું (દા.ત. M-30 Grade માટે Compressive Strength 27 N/mm² થી ઓછી) મળશે તો તે પેવરબ્લોક Reject કરવામાં આવશે એટલે કે તેમનું Payment કરવામાં આવશે નહિ.
- કોઇપણ Grade ના પેવર બ્લોક માટે Compressive Strength નું સરેરાશ પરિણામ 10% ની મર્યાદામાં ઓછું (દા.ત. M-30 Grade માટે Average Compressive Strength 27 N/mm² થી 29.99 N/mm² ની વચ્ચે) મળશે તો તે પેવરબ્લોક માટે Minimum 5 % તેમજ Maximum 10% મળેલ Average Compressive Strength પ્રમાણે Rate Reduce કરવાનાં રહેશે.
- કોઇપણ Grade ના પેવર બ્લોક માટે Water Absorption નું સરેરાશ પરિણામ 6% વધુ 7% સુધી મળે તો 10% Rate Reduce કરવા, તેમજ Water Absorption નું પરિણામ 7% થી વધુ 8% સુધી મળે તો 25% Rate Reduce કરવા, તેમજ 8% થી વધુ Water Absorption નું પરિણામ મળે તો તે પેવરબ્લોક Reject કરવામાં આવશે એટલે કે તેમનું Payment કરવાનું થશે નહિ.

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- Compressive Strength માટે કુલ ૮ પેવર બ્લોકનું ટેસ્ટીંગ કરવાનું રહેશે જે ૮ પેવર બ્લોક (ગ્રેડ મુજબ સરેરાશ પરિણામ મળશે તો પણ) પૈકી જો ૧ થી ૨ Individual Sample નું પરિણામ 85% કરતા ઓછું મળશે તો 10% Rate Reduce કરવામાં આવશે તેમજ ૮ પેવર બ્લોક પૈકી જો ૨ થી વધારે Individual Sample નું પરિણામ 85% કરતા ઓછું મળશે તો તે પેવરબ્લોક Reject કરવામાં આવશે એટલે કે તેમનું Payment કરવામાં આવશે નહિ.
- આ ઉપરાંત ભવિષ્યમાં પેવીંગ બ્લોકના કામોમાં IS:15658 (2006) મુજબ વધુ પ્રમાણમાં જરૂર કરતા ઓછા પરિણામ મળતા હોવાનું જાણમાં આવશે, ક્વોલીટી જળવાતી નહિ જણાય તો, સંદર્ભના પરીપત્ર પ્રમાણેની જોગવાઈ ફરીથી લાગુ પાડવામાં આવશે.
- ૧૨.૦૦ મી. કે તેથી મોટા રોડના Side Shoulder માટે M-30 Grade (ISI Mark) Rubber Mould Paving Block વાપરવાના રહેશે. ૧૨.૦૦ મી. થી નાની પહોળાઈના રસ્તાઓ પર Side Shoulder માં M-30 Grade (ISI Mark) Non Rubber Mould Paving Block વાપરવાના રહેશે.
- પહોળાઈમાં ૫.૦૦ મી. કે તેથી ઓછી પહોળાઈ વાળી શેરી હોય ત્યાં જ આખી શેરીમાં Paving Block ની કામગીરી કરી શકાશે.જનભાગીદારી યોજના હોય ત્યાં ૫.૦૦ મી. કે તેથી વધુ પહોળાઈ વાળી શેરીમાં Rubber Mould Paving Block ની કામગીરી કરી શકાશે.
- આ પરીપત્રને ટેન્ડરના એક ભાગ તરીકે રાખવાનો રહેશે.

ઉપરોક્ત બાબતની અમલવારી તાત્કાલિક અસરથી ચુસ્તપણે કરવાની રહેશે.

કમિશ્નર
રાજકોટ મહાનગરપાલિકા

નકલ રવાના (જાણ તથા અમલવારી અર્થે)

- નાયબ કમિશ્નરશ્રી (ઇસ્ટ, સેન્ટ્રલ, વેસ્ટ ઝોન)

નકલ રવાના (અમલવારી અર્થે)

- તમામ સીટી એન્જીનીયરશ્રી, એડી. સીટી એન્જીનીયરશ્રી, એક્ઝીક્યુટીવ એન્જીનીયરશ્રી, એન્વાયરમેન્ટ એન્જીનીયરશ્રી (S.W.M.)
- ડી.ઈ.ઈ.શ્રી (વીજીલન્સ શાખા - ટેક.)

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રાજકોટ મહાનગરપાલિકા

ડો. આંબેડકર ભવન, ઢેબરભાઈ રોડ, રાજકોટ - ૩૬૦ ૦૦૧.

વેબસાઈટ : www.rmc.gov.in

આર.એમ.સી./સી./વીજ.(ટેક્ક)/જા.નં.- ૨૩૧ તા. ૧૧/૦૩/૨૦૨૨

પરીપત્ર-:

રાજકોટ મહાનગરપાલિકા અને RSCDL ખાતે ટેન્ડરથી થતા કામમાં સિમેન્ટ કોન્કીટની કામગીરી કરવામાં આવે છે. આ કામોમાં ક્વોલીટી કન્ટ્રોલ જળવાઈ રહે તે માટે નીચે દર્શાવેલ દર્શાવ્યા મુજબ જુદા જુદા સિમેન્ટ કોન્કીટ ગ્રેડ વાઈઝ મીનીમમ સિમેન્ટ કન્ટેન્ટના ધોરણો અનુસરવા અને તેનો સમાવેશ ટેન્ડર ડોક્યુમેન્ટમાં કરવા આથી હુકમ કરવામાં આવે છે.

(અ)	NABL માન્ય લેબ દ્વારા IS, IRC કે MORTH મુજબ તૈયાર કરાયેલ સિમેન્ટ કોન્કીટ મીક્સ ડીઝાઈન રીપોર્ટ મુજબ કિગ્રા સિમેન્ટ કન્ટેન્ટ પ્રતિ ઘનમીટર
(બ)	નીચે દશાવેલ ટેબલ મુજબ મીનીમમ કિગ્રા સિમેન્ટ કન્ટેન્ટ પ્રતિ ઘનમીટર

Sr. No.	Cement Concrete Grade	28 Days Strength in N/mm²	Minimum Cement in Kg
1	M-7.5 for PCC Work	7.5 N/mm²	160 Kg
2	M-10 for PCC Work	10 N/mm²	220 Kg
3	M-15 for PCC Work	15 N/mm²	290 Kg
4	M-20 for RCC Work	20 N/mm²	360 Kg
5	M-25 for RCC Work	25 N/mm²	380 Kg
6	M-30 for RCC Work	30 N/mm²	410 Kg
7	M-35 for RCC Work	35 N/mm²	425 Kg
8	M-40 for RCC Work	40 N/mm²	440 Kg
9	M-45 for RCC Work	45 N/mm²	450 Kg

ઉપરોક્ત (અ) અને (બ) પૈકી જે વધુ હોય, તે સિમેન્ટ કન્ટેન્ટ ને ફાઈનલ મીનીમમ સિમેન્ટ કન્ટેન્ટ પ્રતિ ઘનમીટર ગણવા હુકમ કરવામાં આવે છે.

ઉપરોક્ત બાબતની અમલવારી તાત્કાલિક અસરથી ચુસ્તપણે કરવાની રહેશે.

કમિશ્નર
રાજકોટ મહાનગરપાલિકા

નકલ રવાના (જાણ તથા અમલવારી અર્થે)

- નાયબ કમિશ્નરશ્રી (ઝોન-વેસ્ટ ,સેન્ટ્રલ ,ઇસ્ટ)

નકલ રવાના -(અમલવારી અર્થે)

- તમામ સીટી એન્જીનીયરશ્રી, એડી. સીટી એન્જીનીયરશ્રી, એક્ઝીક્યુટીવ એન્જીનીયરશ્રી, એન્વાયરમેન્ટ એન્જીનીયરશ્રી (S.W.M.)

R.M.C./C./632

કમિશ્નર વિભાગ,
રાજકોટ મહાનગર સેવાસદન
તા. 20/6/2013

હુકમ :–

વિષયઃ– ઈ–ટેન્ડર / ઓપન ટેન્ડર પધ્ધતિથી મંગાવવામાં આવતી તમામ પ્રકારની ઓફરો સાથે બિનઅધિકૃત રજુ થતાં ડોકયુમેન્ટસ સામે કડક કાર્યવાહી હાથ ધરવા બાબત.

સંદર્ભ :– આ સ્થાઓનાં પરીપત્ર નં. આર.એમ.સી./સી./૩૨૯, તા.૨૨/૧૨/૨૦૧૨.

રાજકોટ મહાનગર સેવાસદનના તમામ ઝોનનાં તમામ વોર્ડમાં શહેરનાં વિકાસ તથા જાળવણી માટે વિવિધ કામગીરી કરાવવા ઈ–ટેન્ડર / ઓપન ટેન્ડર પધ્ધતિથી અલગ અલગ એજન્સીઓ પાસેથી સ્પર્ધાત્મક ધોરણે અખબારી પ્રસિધ્ધિથી ભાવો ટુ બીડ સીસ્ટમ (૧) ટેકનીકલ બીડ (૨) પ્રાઈઝ બીડ થી મંગાવવામાં આવે છે.

સંદર્ભના પ્રસિધ્ધ કરેલ પરીપત્ર મુજબ તમામ ઈ–ટેન્ડર / ઓપન ટેન્ડરથી મંગાવવામાં આવતાં ભાવો સાથે ભાવ ભરનાર એજન્સીઓ / બીડરો દ્વારા ટેન્ડર બીડ માટે રજુ કરવાનાં થતાં તમામ ડોકયુમેન્ટસ ફરજીયાતપણે ખરી નકલમાં અથવા સેલ્ફ એટેસ્ટેડ રજુ કરવા આદેશ કરવામાં આવેલ છે. જે સંબધે નીચે મુજબનાં હુકમની અમલવારી તાત્કાલીક અસરથી કરવા આદેશ કરવામાં આવે છે.

(૧) તમામ ટેન્ડરકામોના ટેકનીકલ બીડ ઓપન કરતી વખતે જે ટેન્ડર બીડ ભરનાર એજન્સીઓ દ્વારા તમામ ડોકયુમેન્ટસ કે તે પૈકી કોઈપણ એક ડોકયુમેન્ટસ ખરી નકલમાં અથવા સેલ્ફ એટેસ્ટેડ રજુ કરેલ ન હોય તો રજુ થયેલ ટેકનીકલ બીડ ઓપન કરવાની કાર્યવાહી દરમ્યાન ટેકનીકલ બીડ ઓપન કરનાર સંબંધીત અધિકારીશ્રી / કર્મચારીશ્રીએ Disqualify પ્રકારનો રબ્બર સ્ટેમ્પ બિનઅધિકૃત રજુ થયેલ ટેન્ડરનાં તમામ પાને લગાવી ટેકનીકલ બીડમાં ટેન્ડર Disqualify ફરજીયાતપણે કરવાનું રહેશે.

જે ટેન્ડર ખરી નકલ કે સેલ્ફ એટેસ્ટેડ સાથે રજુ થયેલ નથી, તેવું ટેકનીકલ બીડમાં ધ્યાને આવ્યેથી રજુ થયેલ ટેન્ડરને Disqualify ન કરી, તે બીડરનું જો પ્રાઈઝ બીડ ખોલવામાં આવશે તો આવા પ્રાઈઝ બીડ ખોલનાર તમામ સંબંધીત અધિકારીશ્રી / કર્મચારીશ્રી સામે સખત શિક્ષાત્મક પગલાં લેવાની ફરજ પડશે.

(૨) તમામ ટેન્ડરોનાં કિસ્સાઓમાં સંબંધીત ખરી નકલમાં રજુ થયેલ તમામ ડોકયુમેન્ટસની મુળ (ઓરીજીનલ)નકલ મંગાવી તેની ખરી નકલની ચકાસણી ફરજીયાતપણે સંબંધીત ડી.ઈ.ઈ.શ્રી તથા મ.ઈ.શ્રી / અ.મ.ઈ.શ્રીએ કરવાની રહેશે. **જે મુળ નકલ સાથે વેરીફાય કર્યાની સહી ફરજીયાતપણે દરેક ખરી નકલમાં સંબંધીત ડી.ઈ.ઈ.શ્રી / મ.ઈ.શ્રી / અ.મ.ઈ.શ્રીએ કરવાની રહેશે. તે પહેલાં તે ટેન્ડરની પ્રાઈઝ બીડ ઓપન કરી શકાશે નહી.** જેમાં ફરજચૂક થયેથી સંબંધીત જવાબદાર ડી.ઈ.ઈ.શ્રી / મ.ઈ.શ્રી / અ.મ.ઈ.શ્રી ની સામે કડક ખાતાકીય પગલાં લેવાની ફરજ પડશે.

(૩) ક્રમ નં.(૧) તથા (૨) મુજબની ચકાસણી કરવા છતાં જે કિસ્સામાં ટેકનીકલ બીડ ઓપન કરતાં બીડર દ્વારા કોઈપણ પ્રકારનાં ક્રોડ ડોકયુમેન્ટસ રજુ કરી કામ મેળવવા માટે પ્રયાસ કર્યાનું ધ્યાને આવે, તેવા કિસ્સામાં બીડર / એજન્સીને બ્લેકલીસ્ટ કરી, આવા બીડર સામે ફરજીયાતપણે ફોજદારી કાર્યવાહી સંબંધીત શાખાના વડા તથા વીજીલન્સ અધિકારીશ્રી (પ્રોટેકશન) દ્વારા જોઈન્ટલી દિન–૭ માં કરવા આદેશ કરવામાં આવે છે. જેની લેખિતમાં

જાણ તાત્કાલીક અસરે કરવાની રહેશે. જેમાં ચુક થયેથી સંબંધીત તમામ અધિકારીશ્રી / કર્મચારીશ્રી સામે કડક પગલાં લેવા કરજ પડશે.

(૪) સંદર્ભનો પરીપત્ર તથા આ હુકમ તમામ પ્રકારનાં ટેકનીકલ કામના દરેક ટેન્ડર પ્રસિધ્ધ કરતી વખતે ટેન્ડરનો હિસ્સો ગણી ટેન્ડરના ભાગ તરીકે પ્રસિધ્ધ કરવાનું ફરજીયાત રહેશે, તથા બીડર દ્વારા ટેન્ડરમા પ્રશિધ્ધ થતા સંદર્ભનાં પરીપત્ર તથા આ હુકમનાં દરેક પાને સહી સિકકા સાથે ભરેલ ટેન્ડરની ટેકનીકલ બીડ ફરજીયાત રજુ કરવાની રહેશે.

ઉપરોકત હુકમનો તાત્કાલીક અસરથી ચુસ્તપણે અમલ કરવા આદેશ કરવામાં આવે છે.

કમિશ્નર

રાજકોટ મહાનગર સેવાસદન

<u>નકલ રવાના (જાણ અર્થે):-</u>
નાયબ કમિશ્નરશ્રીઓ (તમામ)

<u>નકલ જાણ તથા અમલવારી અર્થે</u> :-
(૧) સહાયક કમિશ્નરશ્રીઓ (તમામ)
(૨) શાખાધિકારીશ્રીઓ (તમામ)

આર.એમ.સી./સી. ૩૨૮

રાજકોટ મહાનગરપાલિકા
કમિશનર વિભાગ
તા.૨૨/૧૨/૨૦૧૨

પરિપત્ર:-

ઇ-ટેન્ડર પદ્ધતિ / ઓપન ટેન્ડર પદ્ધતિથી માંગવામાં આવતી ઓફરોમાં એજન્સીઓ દ્વારા ટેકનીકલ બીડમાં રજુ કરવામાં આવતા ડોક્યુમેન્ટ્સ જેવા કે ટર્નઓવર, અનુભવના પ્રમાણપત્રો વિગેરે ખરી નકલમાં રજૂ કરવામાં આવતા નથી. આથી હવે પછીથી એજન્સીઓ દ્વારા રજૂ થતાં ટેકનીકલ બીડમાં રજુ કરવામાં આવતા ડોક્યુમેન્ટ્સ ખરી નકલમાં અથવા સેલ્ફ એટેસ્ટેડ હોવા જરૂરી છે તેમજ જે એજન્સીનું ટેન્ડર ટેકનીકલ બીડમાં ક્વોલીફાય થાય અને ખરી નકલ ગેઝેટેડ ઓફીસર મારફત પ્રમાણિત કરાવેલ ન હોય તેવા કેસમાં તેના ઓરીજીનલ ડોક્યુમેન્ટ્સ પ્રાઇસબીડ ખોલતા પહેલા ચકાસી અને ખરી નકલ રજૂ કરાવીને જ ખોલવાના રહેશે તથા આ બાબતનું શાખાધિકારીશ્રીઓએ ચુસ્તપણે પાલન કરાવવાનું રહેશે. આમ ન થયેથી પુરતી ચકાસણીને અભાવે જો કોઇ એજન્સીને ખોટા કે અધુરા આધારો સાથે કામ આપવાની ક્ષતિજનક બાબત જાણમાં આવ્યે તે ટેન્ડર ડોક્યુમેન્ટ્સની ચકાસણી કરનાર કર્મચારીશ્રીઓ તેમજ શાખાધિકારીશ્રીની જવાબદારી નક્કી કરવામાં આવશે, જેની સર્વે શાખાધિકારીશ્રીઓએ નોંધ લેવી.

ઉપરોક્ત બાબતનો અમલ તાત્કાલિક અસરથી કરવો.

22/12

કમિશનર
રાજકોટ મહાનગરપાલિકા

નકલ રવાના :- (જાણ અર્થે)
- નાયબ કમિશનરશ્રીઓ (તમામ)

નકલ જાણ તથા અમલવારી અર્થે :-
- સહાયક કમિશનરશ્રીઓ (તમામ)
- શાખાધિકારીશ્રીઓ (તમામ)

જાહેરનામું

ફોજદારી કાર્યરીતી અધિનિયમ ૧૯૭૩ (૧૯૭૪ના નં.૨) ની કલમ ૧૪૪ અન્વયે કાયદેસર હુકમ

ક્રમાંક: એસ.બી/મજુર/જાહેરનામુ/પી.૬૩૯/૨૦૧૪,
પોલીસ કમિશ્નરશ્રીની કચેરી,
રાજકોટ શહેર,રાજકોટ.
તા.૨૬/૦૪/૨૦૧૪

તાજેતરમાં રાજકોટ શહેરમાં ઘરફોડ ચોરીના બનાવો બનેલ છે તપાસમાં આવેલ છે ભુતકાળમાં રાજકોટ શહેરમાં બનેલ ઘરફોડ ચોરીના બનાવોની તપાસ કરતા તપાસમાં આવ્યુ ગુન્હે કરનાર (ઘરફોડીયા) પકડાયેલ છે. ત્યારે તપાસમાં આવ્યુ ગુન્હા વાળા આરોપીઓએ ગુન્હાના બનાવના દિવસો અગાઉ રાજકોટ શહેરમાં નવા બંધાતા મકાનોમા જુદી જુદી ઔદ્યોગીક કંપનીઓમાં, કોર્પોરેશનમાં મજુરી કામ અને ટેલીફોન કંપનીઓ દ્વારા તથા ગેસ પાઇપ લાઇન માટે ખોદાતા ખાડાઓની મજુરી કામ મેળવી અથવા તેના બહાના હેઠળ આવી રોજાણ કરી આજુબાજુની સ્થાનિક પરીસ્થિતીનુ સર્વે કરી માહીતગાર થઇ મિલ્કત વિરૂધ્ધના ગુન્હાઓ આચરતા હોય છે. મજુરી કામના બહાના હેઠળ આતંકવાદીઓ પણ આશરો મેળવી લેતા હોય છે જેથી જાહેર જનતાની જાન-માલ (મિલ્કત)ની સલામતી તથા રક્ષણ માટે મોડા નિયંત્રણો મુકવા જરૂરી જણાય છે.

જેથી હું મોહન ઝા (I.P.S.), પોલીસ કમિશ્નર, રાજકોટ શહેર ફોજદારી કાર્યરીતી અધિનીયમ (સી.આર.પી.સી.) ૧૯૭૩ (૧૯૭૪ ના નં.૨) ની કલમ ૧૪૪ અન્વયે મળેલ પાવર વાપરી આથી હું હુકમ કરૂ છુ કે, રાજકોટ શહેરના પોલીસ કમિશ્નર વિસ્તારમા લેબર કોન્ટ્રાક્ટર/મુકાદમનાઓએ પોતાની પાસે જે મજુર કામે રાખેલ હોય અને મજુરો કામકાજ માટે સપ્લાય કરતા હોય તેઓએ નીચે જણાવેલ ફોર્મ મુજબ દરેક મજુરોના અલગ-અલગ ફોર્મ ભરી ફરજીયાત પણે સ્થાનીક પોલીસ સ્ટેશનને જાણ કરવાની રહેશે તથા મજુરી જ્યારે મજુરી કામ તથા રાજકોટ શહેર છોડી જતા રહે ત્યારે લેબર કોન્ટ્રાક્ટર/મુકાદમે તે અંગેની જાણ નામ/સરનામા સહિતની વિગત સાથે સ્થાનીક પો.સ્ટે.મા કરવાની રહેશે

૧	લેબર કોન્ટ્રાક્ટર / મુકાદમ (સપ્લાયર) નુ પુરૂ નામ સરનામુ મો.નં., નંબર સહિત	:-
૨	મજુરનુ નામ તથા ઉ.વ	:-
૩	મજુરનું હાલનુ સરનામુ ટેલીફોન નંબર	:-
૪	મજુરનુ પુળ વતનનું સરનામું ગામ, તાલુકો, જીલ્લો	:-
૫	હાલની મજુરીનુ સ્થળ / કંપનીનુ નામ	:-
૬	મજુરનુ વતનનું સ્થાનીક પો.સ્ટે.નું નામ તથા ટેલીફોન નંબર	:-
૭	મજુરના વતનના આગેવાનનું નામ, સરનામુ, ટેલીફોન નંબર	:-
૮	મજુર અગાઉ કોઇ પોલીસ ગુન્હામાં પકડાયેલ હોય તો તેની વિગત	:-
૯	કયારથી મુકાદમ / કોન્ટ્રાક્ટરે મજુરી કામ માટે રાખેલ છે	:-
૧૦	મજુરનુ બેંકમાં હાલનુ એ.ડી.પુરૂ (ફોટા સાથે નું)	:-
૧૧	રાજકોટ શહેરમા કઇ તારીખથી મજુરી કામ કરે છે ? અને કઇ તારીખે જવાનો છે ?	:-
૧૨	રાજકોટ શહેરમાં નજીકના સંબંધી કોઇ હોયતો તેનુ નામ, સરનામુ	:-

મજુરનો ફોટોગ્રાફ

મજુરના અંગુઠાનુ નિશાન.....
મુકાદમ/સપ્લાયર/કોન્ટ્રાક્ટરની સહિ.....
નામ.....

આ હુકમ તા. ૦૧/૦૫/૨૦૧૪ થી તા.30/06/૨૦૧૪ સુધી અમલમા રહેશે.

આ હુકમની કોઇ કરનાર વ્યક્તિ વિરૂધ્ધ ઇ.ક સંહિતાની કલમ ૧૮૮ મુજબ શિક્ષાને પાત્ર થશે.

તમામને વ્યક્તિગત રીતે નોટીસની બજવણી કરવી શક્ય ન હોય આથી એકતરફી હુકમ કરૂ છુ. જાહેર જનતાની જાણ સારૂ સ્થાનીક વર્તમાન પત્ર આકાશવાણી અને દુરદર્શન કેન્દ્ર મારફતે પ્રસિધ્ધી દ્વારા તાથ પોલીસ સ્ટેશનના પોલીસ ઇન્સ્પેકટર, મદદનીશ પોલીસ કમિશ્નર, નાયબ પોલીસ કમિશ્નર તથા પોલીસ કમિશ્નર કચેરીના નોટીશ બોર્ડ ઉપર હુકમની નકલ ચોંટાડી પ્રસિધ્ધી કરવામાં આવશે તેમજ સહેલાઇથી જોઇ શકાય તેવી જાહેર જગ્યાઓ ઉપર હુકમની નકલ ચોંટાડી પ્રસિધ્ધી કરવામાં આવશે ગુજરાત પોલીસ એક્ટ કલમ ૧૬૩ મુજબ પોલીસ અધિકારીઓ પણ આ હુકમની જાહેરાત કરવા અધિકૃત ગણાશે.

આજ તારીખ ... એપ્રીલ-૨૦૧૪ ના રોજ મારી સહી અને સિક્કો કરી આપેલ છે.

(મોહન ઝા)
પોલીસ કમિશ્નર
રાજકોટ શહેર,રાજકોટ

નકલ રવાના:

(૧) અગ્ર સચિવશ્રી, ગૃહ વિભાગ, ગાંધીનગર.
(૨) પોલીસ મહાનિર્દેશક અને મુખ્ય પોલીસ અધિકારીશ્રી, ગુ. રા. ગાંધીનગર
(૩) અધિક પોલીસ મહા નિર્દેશકશ્રી (ઇન્ટે.) ગુ.રા.ગાંધીનગર.
(૪) પોલીસ કમિશ્નરશ્રી, અમદાવાદ શહેર, વડોદરા શહેર, સુરત શહેર.
(૫) ખાસ મુખ્ય પોલીસ અધિકારીશ્રી, રાજકોટ રેન્જ, રાજકોટ.
(૬) જીલ્લા પોલીસ અધિક્ષકશ્રી, રાજકોટ ગ્રામ્ય, રાજકોટ.
(૭) કલેકટરશ્રી , રાજકોટ શહેર
(૮) મ્યુનિસિપલ કમિશ્નરશ્રી, રાજકોટ શહેર.
(૯) નિયામકશ્રી, માહીતી ખાતું ડોક્યુમેન્ટેશન શાખા જુના સચિવાલય બ્લોક નં.૭, બીજા માળે,ગુ.રા., ગાંધીનગર.
(૧૦) જીલ્લા સરકારી વકિલશ્રી, સેસન્સ કોર્ટ, રાજકોટ.
(૧૧) મેનેજરશ્રી, ગવર્મેન્ટ પ્રેસ, રાજકોટ (ગેઝેટ ભાગ-૧ માં પ્રસિધ્ધ કરવા સારૂ).
(૧૨) મદદનીશ પોલીસ કમિશ્નરશ્રી, પૂર્વ/ પશ્ચિમ વિભાગ, રાજકોટ શહેર.
(૧૩) આર્ટી.કમિશ્નરશ્રી, (ઈન્ટે.), રાજકોટ રીજીયન, રાજકોટ.
(૧૪) નાયબ પોલીસ અધિક્ષકશ્રી,/પો.ઇન્સ.શ્રી. રાજકોટ રેલ્વે જંકશન પો.સ્ટે.
(૧૫) તમામ પો.સ્ટે.ઇન્ચાર્જશ્રીઓ,રાજકોટ શહેર(નકલી ચોંટાડી લાઉડ સ્પીકર વાહન દ્વારા જાહેરાત કરાવવા સારૂ)
(૧૬) તમામ સ્કવોડ તથા શાખા ઇન્ચાર્જશ્રીઓ, રાજકોટ શહેર.
(૧૭) કન્ટ્રોલ ઇન્ચાર્જશ્રી, રાજકોટ શહેર (૧૦ નકલ) વર્તમાનપત્રોને આપવી.
(૧૮) લેબર કમિશ્નરશ્રી, ... તમામ ખાનગી સસ્થાઓને અવગત કરવવા સારૂ

નકલ સવિનય રવાના:-

(૧) રજીસ્ટ્રારશ્રી, હાઈકોર્ટ, ગુ.રા.સોલારોડ અમદાવાદ.
(૨) રજીસ્ટ્રારશ્રી, ડીસ્ટ્રીક્ટ એન્ડ સેશન્સ કોર્ટ, રાજકોટ.
(૩) રજીસ્ટ્રારશ્રી, ચીફ જ્યુડીશ્યલ મેજી.શ્રી કોર્ટ, રાજકોટ.
(૪) રજીસ્ટ્રારશ્રી, એડીશનલ સેશન્સ જજ કોર્ટ રાજકોટ.
(૫) એકઝીક્યુટીવ મેજી.શ્રી, રાજકોટ શહેર
(૬) એકઝીક્યુટીવ મેજી.શ્રી, રાજકોટ તાલુકા
(૭) સયુંકત માહીતી નિયામકશ્રી, રાજકોટ.
(સ્થાનીક વર્તમાનપત્રો, આકાશવાણી તથા દુરદર્શન કેન્દ્રમાં પ્રસિધ્ધ કરવા અને વર્તમાનપત્રોની કાપલીઓ મોકલવા સારૂ)

રાજકોટ મહાનગરપાલિકા

હિસાબી શાખા

ડૉ.આંબેડકર ભવન, ઢેબરભાઇ રોડ, રાજકોટ – ૩૬૦ ૦૦૧.

રા.મ.ન.પા./હિસાબી/જા.નં. ૪૨૧ તા. ૧૬/૬/૨૦૧૭

નોંધ -

વિષય – Vendor Regi. માં GST No. Update કરવા બાબત

ઉપરોકત વિષયે જણાવવાનું કે રાજકોટ મહાનગરપાલીકા નાં તમામ વેન્ડર / કોન્ટ્રાકટરો ના Vendor Registration માં GST No. ની જરૂરીયાત હોય તાત્કાલીક અપડેટ કરવા વિનંતિ. Temporary Vendor નાં Regi. આપની શાખામાં જ થઇ જશે જ્યારે Permanent Vendor નાં GST No. અપડેટ કરવા શાખા અધિકારીશ્રી નાં જરૂરી સહી સીક્કા સાથે નીચે મુજબ વિગત નું પત્રક બનાવી દિવસ – ૭ માં હિસાબી શાખામાં માહિતી મોકલાવી આપવા વિનંતી.

Vendor Name	Exiting Vendor Regi. No.	PAN	GST NO.

ચીફ એકાઉન્ટન્ટ
રાજકોટ મહાનગરપાલીકા

નોંધ - તમામ વિગતો ચકાસીને અપડેટ કરવી / ચકાસીને મોકલવી અન્યથા સપ્લાયર્સ ને TDS ની કેડીટ મળશે નહી જેની નોંધ લેવા વિનંતી.

રાજકોટ મહાનગરપાલિકા
સે. ઝોન બાંધકામ શાખા
ઈન્વર્ડ નંબર ૧૩૭
તારીખ ૨૬/૬/૧૭

નકલ અમલવારી અર્થે

1. તમામ શાખા અધિકારીશ્રી ઓ

નકલ સવિનય જાણ અર્થે

1. માન. કમિશ્નર સાહેબશ્રી
2. માન. નાયબ કમિશ્નર સાહેબશ્રી

રા.મ.ન.પા./મ.ઓ./સો.વે.મે./જા.નં. ૬૪૩૫ ૦૬/૦૬/૨૨

જાહેરનામું

આથી હું અમિત અરોરા (IAS), મ્યુનિસીપલ કમિશનર, રાજકોટ મહાનગરપાલિકા, રાજકોટ ગુજરાત પ્રોવિન્સીયલ મ્યુનિસીપલ કોર્પોરેશન એકટ-૧૯૪૯ની જોગવાઇ અનુસંધાને મળેલ સતા મુજબ, જાહેર હિતને ધ્યાને લઇ, રાજકોટ મહાનગરપાલિકા વિસ્તારમાં ઇમારત તોડવા, સમારકામ અથવા તો નવા બાંધકામ દરમ્યાન ઉપસ્થિત થતા બાંધકામએ લગત કચરા (Construction and Demolition Waste) નો રાજકોટ મહાનગરપાલિકા દ્વારા નિયત કરાયેલ જગ્યા સિવાય નિકાલ કરવા પ્રતિબંધ ફરમાવું છું.

એવું ધ્યાનમાં આવેલ છે જે, રાજકોટ મહાનગરપાલિકા વિસ્તારમાં ઇમારત, ઇમારતોના બાંધકામ દરમ્યાન નળીયા, પથરા, ઇંટો, ઇમારત બાંધવાના માલ સામાન અને એવા માલ સામાનનો કાટમાળ ગમે તે જગ્યાએ નિકાલ / એકઠો કરવામાં આવે છે. જેનાથી એવી જગ્યાએ ઉંદરો અથવા અન્ય જીવ જંતુઓનું આશ્રય સ્થાન અથવા ઉત્પતિ સ્થાન બને છે. તેમજ સદરહું જગ્યાનો ભોગવટો કરનારાઓને અથવા પડોશમાં રહેતી વ્યક્તિઓના ભય અને ઉપદ્રવનું કારણ બને છે. તેના કારણે રોગચાળો ફેલાવવાનો ભય અને લોકોના આરોગ્ય તથા જાનમાલને નુકસાન થાય તેવી સ્થિતી ઉત્પન્ન થાય છે. તેમજ તે કચરો (Construction and Demolition Waste) દુર કરવા રાજકોટ મહાનગરપાલિકાને ખુબજ મોટો ખર્ચ થાય છે, તેમજ માનવ સમય બગડે છે. આમ, લોકોના જાનમાલના અને આરોગ્યના નુકસાનના ભોગે આવી ગેરકાયદેસર પ્રવૃતિ ચાલી રહેલ છે, આવી કોઇપણ પ્રવૃતિ જન આરોગ્ય માટે બિન સલામતી નોતરે તેમ હોય, ગુજરાત પ્રોવિન્સીયલ મ્યુનિસીપલ કોર્પોરેશન એકટ અનુસુચી-ક ના પ્રકરણ-૧૪ ની જોગવાઇઓ અનુસંધાને આવી તમામ પ્રવૃતિ કરવાનો અગાઉના જાહેરનામા નં.રા.મ.ન.પા./મ.ઓ./સો.વે.મે./જા.નં.૧૯૪૧, તા.૦૬/૦૮/૨૦૧૯ થી પ્રતિષેધ ફરમાવવામાં આવેલ અને આવા કચરા (Construction and Demolition Waste)ના નિકાલ માટે રાજકોટ મહાનગરપાલિકાએ નીચે દર્શાવેલ સ્થળો નિયત કરવામાં આવેલ.

૧. કોઠારીયા પોલીસ ચોકીની બાજુમાં પથ્થરની ખાણ પાસે,
૨. રૈયા સ્માર્ટ સીટીના તમામ ખાણ વિસ્તાર,
૩. ટી.પી.સ્કીમ નં.૧૦, એફ.પી.-૮૭, ઢેબર રોડ, સાઉથ અટીકા વિસ્તાર, પી.જી.વી.સી.એલ. ઓફિસ પાસે,
૪. ટી.પી.સ્કીમ નં.૨૩, એફ.પી.-૨૩, મોરબી રોડ,પોપટપરા આઇ.ઓ.સી. ગોડાઉન પાસે,
૫. સમ્રાટ ઇન્ડ. એરિયા, એસ.ટી. વર્કશોપ પાછળ, અનામત પ્લોટ,
૬. ટી.પી.સ્કીમ નં.૯, એફ.પી.-૫, રૈયાધાર ગાર્બેજ ટ્રાન્સફર સ્ટેશન પાસે,
૭. ટી.પી.સ્કીમ નં.૨૦, એફ.પી.-૩૫, પ્રધ્યુમન ગ્રીન પાછળ

ઉપરોકત સ્થળો ઉપરાંત નીચે મુજબના સ્થળો Construction and Demolition Waste ના નિકાલ માટે નિયત કરવામાં આવે છે.

૧. જેટકો ચોકડી, ટી.પી.સ્કીમ નં.૨૮, મવડી, એફ.પી.-૪૬/એ,
૨. ટી.પી.સ્કીમ નં.૧૨, કોઠારીયા નેશનલ હાઇવે, લીજ્જત પાપડ પાસે, એફ.પી.-૩૮/એ, ૩૯/બી.

ઉપરોકત નિયત કરેલ સ્થળો સિવાય અન્ય કોઇપણ જગ્યાએ કોઇપણ ઇસમ/ઇસમો છકડો, ટ્રેકટર અથવા ડમ્પર દ્વારા (Construction and Demolition Waste) નો નિકાલ કરતાં પકડાશે તો પ્રથમ વખત છકડો/ટ્રેકટર દીઠ રૂ|.૭,૫૦૦/- તથા ડમ્પર દીઠ રૂ|.૧૫,૦૦૦/-, બીજી વખત છકડો/ટ્રેકટર દીઠ રૂ|.૧૫,૦૦૦/- તથા ડમ્પર દીઠ

રૂ|.૩૦,૦૦૦/- અને ત્રીજી વખત છકડો/ટ્રેકટર દીઠ રૂ|.૫૦,૦૦૦/- તથા ડમ્પર દીઠ રૂ|.૧,૦૦,૦૦૦/-લેખે વહીવટી ચાર્જ વસુલ કરવામાં આવશે. તેમજ વાહન જપ્ત કરવા સુધીની કાર્યવાહી કરવામાં આવશે.

શહેરમાં વસતાં નાગરીકો દ્વારા ઉપરોકત Construction and Demolition Waste ના નિકાલ માટે રાજકોટ મહાનગરપાલિકા દ્વારા ઝોન વાઇઝ કામગીરી માટે Construction and Demolition Waste સેલની રચના કરવામાં આવેલ છે. શહેરના નાગરિકો રાજકોટ મહાનગરપાલિકાના કોલ સેન્ટર – ૦૨૮૧-૨૪૫૦૦૭૭ પર ફોન કરી તેમની મિલ્કતનાં રીપેરીંગ કે કાટમાળનો નિકાલ નીચે મુજબનાં નિયત થયેલ ચાર્જીસ ભરપાઇ કરી નિકાલ કરવાની વ્યવસ્થાનો લાભ મેળવી શકશે.

- રીક્ષા કે ૧/૨ ટ્રેકટર રૂ|.૩૦૦/-
- ટ્રેકટર જેટલો જથ્થો રૂ|.૫૦૦/-
- ટ્રક / ડમ્પર જેટલો જથ્થો રૂ|.૧,૦૦૦/-

ઉપરોકત નિયત કરાયેલ સ્થળોએથી ખાનગી માલિકો, જુનો એકત્રિત થયેલ બાંધકામનો કાટમાળ પોતાના ઉપયોગ માટે સ્વખર્ચે ઉપાડી લઇ જઇ શકશે.

ઉકત જાહેરનામાનો ચુસ્તપણે અમલ કરવો.

રાજકોટ.
તા.4/6/૨૦૨૨

કમિશનર
રાજકોટ મહાનગરપાલિકા

c:\users\...\desktop\jaherynamu c&d waste dt04-06-2022.docx

ક્રમાંક. અશાખ/ ૨૯૯/૨૦૦૮/ ૪૮૯૮

મુખ્ય અંક નિયંત્રકની કચેરી,
સ્ટેમ્પ અને નોંધણી ભવન,
સેક્ટર - ૧૩ – સી "ઘ" રોડ,
ગાંધીનગર.
તા. ૩ /૭/૨૦૦૮

પ્રતિ,
કાર્યપાલક ઇજનેરશ્રીના કચેરી,
માર્ગ અને મકાન વિભાગ
જુનાગઢ

વિષય:- કરારખત પર સ્ટેમ્પ ડ્યુટી વસુલાત બાબત.

સંદર્ભ:- આપની કચેરીનો તા. ૩૦/૭/૨૦૦૮નો પત્ર

ઉપરોક્ત વિષય અને સંદર્ભ પત્ર દ્વારા આપની કચેરી દ્વારા "કરાર ખત" પર ભરવાની સ્ટેમ્પ ડ્યુટીના માર્ગદર્શન બાબતે જણાવવાનું કે, અત્રેની કચેરીના પરિપત્ર નં. સ્ટેમ્પ/ ૧૩/૨૦૦૭/૯૯૯ તા. ૫/૨/૨૦૦૭ ના પરિપત્ર ની નકલ મોકલવામાં આવે છે. જેના પેરા નં. ... (૨)માં જણાવેલ સ્ટેમ્પ ડ્યુટી વાપરવાની થાય છે.

વિશેષમાં જણાવવાનું કે, આપના દ્વારા અત્રે રજુ થયેલ વિગત અન્વયે અત્રેના તા. ...૨૦૦૭ ના પરિપત્ર ના મુદ્દા નં.૨ મુજબ એગ્રીમેન્ટ માટે રૂા. ૧૦૦/- તથા ડિપોઝીટ તરીકે ... નેશનલાઇઝ્ડ બેંકની ફીક્સ ડીપોઝીટ તથા જાની બાબત પત્રોની ૨.૫ % (અઢી ટકા) રકમ રૂા. ... ૪૦૦/- ઉપર આર્ટીકલ -૩૬ (ક) સાથે આર્ટીકલ - ૨૦(ક)માં પ્રવર્તમાન દર તથા ...-૩ મુજબ સરચાર્જસહિત ૧૦૦ ના ૪.૯% મુજબ સ્ટેમ્પ ડ્યુટી ભરપાઈ કરાવવાપાત્ર થાય છે. જે વિદિત થાય.

બિડાણ - પરિપત્રની નકલ.

Off. of the E. E. P.W.
R&B Div.2, Junagadh

2 AUG 2008

અધિક્ષક
અંક
અધિક મુખ્ય અંક નિયંત્રક
ગુજરાત રાજ્ય, ગાંધીનગર.

ન.સ્ટેમ્પ-અપાન-૧૪-૨૦૦૭-૯૩૯

સુપ્રિ.ઓફ સ્ટેમ્પસની કચેરી,
સ્ટેમ્પ અને નોંધણી ભવન,
સેકટર-૧૩-સી, ખ રોડ,
ગાંધીનગર.

તા.૫-૨-૦૭

પરિપત્ર:-

અત્રેની કચેરીનાં ધ્યાન ઉપર આવેલ વિગત મુજબ ગુજરાત રાજયમાં આવેલ જીલ્લા પંચાયત, નગર પાલિકાઓ તરફથી કરવાના થતા બાંધકામ તથા અન્ય કામો માટે ટેન્ડર બહાર પાડી. કોન્ટ્રાકટરો પાસે કામગીરી કરાવવામાં આવે છે. આવી કામગીરી માટે જે કોન્ટ્રાકટરનું ટેન્ડર મંજુર કરવામાં આવે છે. તે ટેન્ડરની અંદાજીત રકમ પૈકી નિયમોનુસાર અનામતની (સીકયુરીટી – ડીપોઝીટની) રકમ લેવામાં આવે છે. તે અંગે જીલ્લા પંચાયત / નગરપાલિકા / મહાનગરપાલિકા અને કોન્ટ્રાકટર વચ્ચે કરાર કરવામાં આવે છે. આવા કરારો સ્ટેમ્પ ડયુટીના અભિપ્રાય માટે અત્રે રજૂ કરવામાં આવે છે. તેમાં જે ડિપોઝીટની રકમ અનામત મુકવાની થાય છે. તે રોકડ, ચેક, ડીમાન્ડ ડ્રાફટ બેંક ગેરંટી ફિકસ ડીપોઝીટ રીસીપ્ટ એન.એસ.સી. બચતપત્ર વિગેરે પૈકીના એક યા વધુ માધ્યમથી આપવામાં આવે છે. તેમાં ટેન્ડર અન્વયે કેટલી રકમ સીકયુરીટી ડીપોઝીટ પેટે મુકવાની છે અને કયા માધ્યમથી મુકવામાં આવે છે. તેની પુરેપુરી વિગત રજુ કરેલ ન હોય તો આવા કેસોમાં પુરેપુરી વિગત રજૂ કરવામાં ન આવે ત્યાં સુધી અભિપ્રાય આપી શકાતો નથી અથવા વિલંબ થાય છે. આવી પરિસ્થિતિ નિવારવા અને ટેન્ડરની રકમ અન્વયે જે કરાર કરવામાં આવે છે. તેમાં નીચેની વિગતે સ્ટેમ્પ ડયુટી લેવાની થાય છે.

(૧) અનામતની જે રકમ રોકડ, ચેક યા ડ્રાફટથી લેવામાં આવે અથવા તો બેંક ગેરંટીથી આપવામાં આવે તો કરારનાં લેખ ઉપર મુંબઈ સ્ટેમ્પ અધિનિયમ -૧૯૫૮ની અનુસુચિ-૧ ના આર્ટીકલ -૫ (અ) મુજબ કરાર ઉપર રૂા. ૧૦૦/- સ્ટેમ્પ ડયુટી વાપરવાની થાય છે.

(૨) ટેન્ડર અન્વયે જે અનામતની રકમ ફિકસ ડીપોઝીટ રીસીપ્ટ, એન.એસ.સી. યા અન્ય કોઈ બચતપત્રના માધ્યમ થી અનામત મુકવામાં આવે તો તેટલી અનામતની રકમ ઉપર મુંબઈ સ્ટેમ્પ અધિનિયમ- ૧૯૫૮ની અનુસુચિ-૧ ના આર્ટીકલ -૩૬ (ક) સાથે આર્ટીકલ ૨૦ (ક) મુજબ આ રીતે આપવામાં આવેલ અનામતની રકમના પ્રત્યેક રૂા. ૧૦૦/- અથવા તેના ભાગ માટે ૪.૨૫% પ્રમાણે સ્ટેમ્પ ડયુટીને પાત્ર બને છે.

આપના તરફથી જે કામો માટે ટેન્ડર બહાર પાડવામાં આવે અને તેમાં ટેન્ડરની રકમ અન્વયે જે રકમ ડિપોઝીટ (અનામત) મુકવામાં આવે છે. તેમાં ઉપર દર્શાવ્યા મુજબ સ્ટેમ્પ ડયુટીને પાત્ર બને છે. તે મુજબ અમલ કરવા વિનંતી છે. સાથોસાથ આપના દ્વારા

ASHN

ઈનવર્ડ
મહાનગરપાલિકા ઈનવર્ડ
ક્ર. નં. ૯૫૬
તા. ૨૧-૨-૦૭

- 23 -

કોન્ટ્રાકટરને વર્ક ઓર્ડર આપવામાં આવે તે સમયે કરારનામા ઉપર ઉકત વિગતે યોગ્ય સ્ટેમ્પ ડયુટી ભરપાઈ કરેલ છે. કેમ ? તેની ખાત્રી કરવા પણ જણાવવામાં આવે છે.

પ્રતિ,
(૧) જીલ્લા વિકાસ અધિકારી,
જીલ્લા વિકાસ અધિકારીની કચેરી
.....

(૨) મ્યુનીસીપલ કમિશ્નરશ્રી,
મ્યુ. કમિશ્નરશ્રીની કચેરી
.....

(૩) ચીફ ઓફિસરશ્રી તમામ
નગરપાલિકા કચેરી,
.....

RAJKOT MUNICIPAL CORPORATION
ACCOUNTS DEPARTMENT
Room No. 4, 2nd Floor
Dr. Ambedkar Bhavan,
Debar Road,
Rajkot - 360001

PARTY/VENDOR REGISTRATION FORM

VENDOR CODE	:	
Party Name	:	
Authorized Person	:	
PAN Card No.	:	
GST No.	:	
Address	:	
City	:	
Phone No.	:	
Mobile No.	:	
eMail ID	:	
Website	:	
Area Of Work	:	
Bank Details (attach copy of cancelled cheque)		
Bank Name	:	
Branch Name	:	
MICR Code	:	IFSC Code :
Account Type	:	
Account No.	:	

(1) Any vendor while filling a tender shall quote registration details; if he is not registred he will give fresh details along with tender.
(2) Acounts branch will designate a person who will keep the forms and also authorize new registrations or edit existing registrations.

TO,
CHIF ACCOUNTANT,
ACCOUNT DEPARTMENT,
RAJKOT MUNICIPAL CORPORATION

THE ABOVE MENTIONED DETAILS FOR VENDOR REGISTRATION HAS BEEN VERIFIED BY US & FOUND CORRECT. KINDLY REGISTER ABOVE VENDOR.

SIGN
NAME
DESIGNATION
DEPARTMENT NAME

રાજકોટ મહાનગરપાલિકા

હિસાબી શાખા

તા૨૦/૦૯/૨૦૧૮

જા.નં. ૧૬૧૭

પરિપત્ર :-

વિષય :- તા. ૦૧/૧૦/૨૦૧૮ થી જી.એસ.ટી. ટી.ડી.એસ. ની કપાત બાબત

સંદર્ભ :- (૧) GoI, MoF (Department of Revenue) Central Board Indirect Taxes and Customs Notification No. 50/2018-Central Tax

(૨) GoG, Finance Department Notification No. 50/2018-State Tax

ઉપરોક્ત વિષય અને સંદર્ભે ગુજરાત ગુડ્સ એન્ડ સર્વિસ ટેક્ષ એક્ટ, ૨૦૧૭ તથા સેન્ટ્રલ ગુડ્સ એન્ડ સર્વિસ ટેક્ષ એક્ટ, ૨૦૧૭ ની કલમ ૫૧ અનુસાર ₹ ૨,૫૦,૦૦૦ થી વધુ રકમના વેરાપાત્ર વીજવસ્તુઓ ખરીદે કે વેરાપાત્ર સેવાઓ કોન્ટ્રાક્ટથી મેળવે તો કુલ ૨% (બે ટકા) ટેક્ષ ડીડક્શન એટ સોર્સ (જી.એસ.ટી. ટી.ડી.એસ) કાપવાનો થાય છે.

આમ ઉપરોક્ત બાબતો ધ્યાને લઇ વધારાની ૨% ની વધારાની નિયમો અનુસાર બિલમાંથી તા. ૦૧/૧૦/૨૦૧૮ થી જી.એસ.ટી. ટી.ડી.એસ. ની કપાત કરવાની થાય છે.

નાયબ કમિશ્નર

રાજકોટ મહાનગરપાલિકા

બિડાણ :- GST FAQ's

નકલ સવિનય જાણ અર્થે:-

(૧) માન. કમિશ્નર સાહેબશ્રી

(૨) માન. નાયબ કમિશ્નર સાહેબશ્રી (વે.ઝોન, ઈ.ઝોન)

નકલ અમલવારી અર્થે:-

(૧) તમામ શાખા અધિકારીશ્રી

રા.મ.ન.પા./લીગલ/જા.નં.૧૫૭૧

રાજકોટ મહાનગરપાલિકા
લીગલ શાખા
તા. ૨૦/૧૨/૨૦૧૯

પરિપત્ર :

વિષય : ઇ.પી.એફ. યોજના અંતર્ગત આપવાની થતી માહિતી

રાજકોટ મહાનગરપાલિકાની જુદી-જુદી શાખાઓમાં ફરજ બજાવતા કર્મચારી કે જેમને ઇ.પી.એફ. યોજના લાગુ પડે છે, અથવા તો જેઓને એક વખત આ યોજના લાગુ પડી ગયેલ હોય, તેઓના ઇ.પી.એફ. એકાઉન્ટમાં કે.વાય.સી. (K.Y.C) ફોર્મમાં આધાર કાર્ડ, પાનકાર્ડ, બેંક એકાઉન્ટની વિગતો તથા મોબાઇલ નંબર અપડેટ કરવાના બાકી હોય તેનું લીસ્ટ ઇ.પી.એફ. કચેરીમાં જે કર્મચારી/એકાઉન્ટ હોલ્ડરની જરૂરી વિગતો પુરી પાડવામાં આવેલ ન હોય તે સત્વરે પુરી પાડવાની થાય છે. તથા અત્રેથી આ કામગીરીના સંકલન અર્થે નિયુક્ત કરવામાં આવેલ પેનલ એડવોકેટ તરફથી ઇ-મેઇલ મારફતે યાદી પુરી પાડેલ છે. જે આ સાથે સામેલ છે. સદરહું લીસ્ટના કર્મચારીઓની વિગત સબંધિત શાખાએ દિન-૭ માં પેનલ એડવોકેટ "શ્રમ કન્સલ્ટન્ટ" ને અચુકપણે પહોંચતી કરવાની થાય છે.

આ ઉપરાંત રાજકોટ મહાનગરપાલિકાની જુદી-જુદી શાખાઓ દ્વારા સને ૨૦૧૧ થી આજદિન સુધી કોન્ટ્રાક્ટરો મારફતે કાર્ય કરાવેલ હોય જેમાં માનવશ્રમનો ઉપયોગ થયો હોય, તે સબંધિત કોન્ટ્રાક્ટરો ઇ.પી.એફ. એક્ટ તથા ઇ.એસ.આઇ. એક્ટ હેઠળ રજીસ્ટ્રેશન કરાવેલ છે કે કેમ? તેની ખરાઇ બાદ જ સબંધિત કોન્ટ્રાક્ટરશ્રીઓના બીલ પાસ કરવા અગાઉ સુચના આપવામાં આવેલ હતી. જેનો ફરીથી કડક અમલીકરણ સુચના આપવામાં આવે છે. સબંધિત કોન્ટ્રાક્ટરોની તથા તેઓ હસ્તકના શ્રમિકોની ઇ.પી.એફ. કચેરી તરફથી આવેલ પત્રમાં દર્શાવેલ વિગતો તાત્કાલિક અસરથી પેનલ એડવોકેટશ્રીને દિન-૭ માં પહોંચતી કરવા દરેક શાખાધિકારીને સુચિત કરવામાં આવે છે.

રાજકોટ મહાનગરપાલિકા
હિસાબી શાખા
ઇનવર્ડ નં. ૩૫૪૨
તારીખ ૨૧/૫/૧૫

ઉપરોક્ત વિગત નિયત સમયમર્યાદામાં ન મોકલવાના સંજોગોમાં અથવા તે અધૂરી અને ખોટી વિગતો મોકલવા બાબતે સંબંધિત શાખાધિકારીની વ્યક્તિગત જવાબદારી નક્કી કરવામાં આવશે. જેથી લીસ્ટમાં દર્શાવ્યા પ્રમાણેના રાજકોટ મહાનગરપાલિકાના કર્મચારીઓની વિગતો તથા આપની કચેરી હસ્તકના કોન્ટ્રાક્ટર તથા તેઓ હસ્તકના શ્રમિકોની વિગતો યોગ્ય ચકાસણી કરી નિયત કરેલ સમયમર્યાદામાં પેનલ એડવોકેટને પહોંચતી કરવી. તથા તેની જાણ લીગલ શાખાને કરવી.

ઉપરોક્ત પરિપત્રની ચુસ્તપણે તાત્કાલિક અસરથી અમલ કરવો.

નાયબ કમિશનર
રાજકોટ મહાનગરપાલિકા

નકલ સવિનય રવાના :-
- માન. કમિશનર સાહેબ
- નાયબ કમિશનર (પ.ઝો./મ.ઝો.)

નકલ રવાના :-
તમામ શાખાધિકારી (અમલવારૂ)

પેનલ એડવોકેટનું સરનામું : ખખ્ખર કોમ્પ્લેક્ષ
૫૦૨ એસ્ટ્રોન સ્ક્વેર
ગોંડલ રોડ, સાયકલ ઝોન ઉપર
રાજકોટ. ફોન નં. ૨૪૫૩૩૮૦

નોંધ : સંબંધિત કોન્ટ્રાક્ટરો ઇ.પી.એફ. એક્ટ તથા ઇ.એસ.આઇ. એક્ટ હેઠળ રજીસ્ટ્રેશન ન કરેલ હોય તેવા તમામ કોન્ટ્રાક્ટરોના બીલો ઓડિટ તથા હિસાબી શાખાએ મંજૂર કરવા નહિ.

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રા.મ.ન.પા./લીગલ/જા.નં. ૧૮૧૮

રાજકોટ મહાનગરપાલિકા
લીગલ શાખા
તા.૨૮/૨/૨૦૧૭

હુકમ:

તમાણે : લીગલ ફાઇલ નં.૩૭૧/૨૦૧૬-૧૭

રાજકોટ મહાનગરપાલિકાની કામગીરી માટે જુદી-જુદી શાખાઓ દ્વારા કામગીરીના પ્રકારને ધ્યાને લઇ નિયમ અનુસારની પ્રક્રિયા અનુસરીને એજન્સી/સપ્લાયર/કોન્ટ્રાક્ટર સાથે જોગવાઇઓ સાથે કરાર કરવામાં આવે છે. મહાનગરપાલિકાની કામગીરી સંદર્ભે તૈયાર કરવામાં આવતા ટેન્ડર/કરારનામામાં વખતો વખતની જરૂરીયાતને ધ્યાને લઇ આર્બીટ્રેશન (Arbitration) ની જોગવાઇઓનો સમાવેશ કરવામાં આવેલ છે.

રાજકોટ મહાનગરપાલિકાની કામગીરી માટે કરવામાં આવેલ કરારનામાની શરતો અનુસંધાને અમુક એજન્સી/સપ્લાયર/કોન્ટ્રાક્ટર દ્વારા છેલ્લા કેટલાક વર્ષોથી નામદાર હાઇકોર્ટ સમક્ષ આર્બીટ્રેટરશ્રીની નિયુક્તિ અંગે પીટીશનો કરવામાં આવે છે, જેના કારણે મહાનગરપાલિકાની કામગીરીના ભારણમાં વધારો થયેલ છે, અને સંબંધિત અધિકારીશ્રીઓને વારંવાર અમદાવાદ ખાતે હાજર રહેવુ પડતુ હોય તેના કારણે અગત્યના પ્રોજેકટો સહીત કચેરીની કામગીરી તેમજ પ્રજાકીય કામો ઉપર વિપરીત અસર થવા પામેલ છે, તેમજ અરજદારોને હેરાન થવું પડે છે. આ અંગે કાયદાકીય, શાખાના અભિપ્રાય અને પ્રકરણની વિગતો જોતા આ કામે વૈકલ્પિક ઉપાય (alternate remedy) ઉપલબ્ધ હોય મહાનગરપાલિકાના ટેન્ડર/કરારનામામાં આર્બીટ્રેશનની જોગવાઇઓને સામેલ કરવાનું ઉચીત જણાતું નથી.

આથી " રાજકોટ મહાનગરપાલિકાના કામે કરવામાં આવતા ટેન્ડર ડોકયુમેન્ટ અને કરારનામામાં આર્બીટ્રેશન (Arbitration) ને લગત જોગવાઇઓ દુર કરવાનો." અને તેના બદલે "ટેન્ડરની શરત/કરારનામાની શરતના અર્થઘટન સંદર્ભે મહાનગરપાલિકાના કમિશનરશ્રીનો નિર્ણય આખરી અને બંધનકર્તા રહેશે," અને "ટેન્ડરની/કરારનામાની શરતો અંગે કોઇ પણ બાબતે વિવાદ ઉપસ્થિત થયે રાજકોટની દિવાની અદાલતની હકુમત રહેશે," તેવી શરતોનો મહાનગરપાલિકાના કામ અર્થે તૈયાર કરવામાં આવતા તમામ કામગીરીના પરિપત્રો/ટેન્ડર ડોકયુમેન્ટ તેમજ કરારનામામાં સમાવેશ કરવાનો આથી હુકમ કરવામાં આવે છે.

આ હુકમનો અમલ તાત્કાલિક અસરથી યુસ્તપણે કરવો.

કમિશનર
રાજકોટ મહાનગરપાલિકા

નકલ રવાના જાણ અર્થે : નાયબ કમિશનરશ્રી (તમામ)

નકલ રવાના જરૂરી કાર્યવાહી અર્થે : તમામ શાખાધિકારીશ્રીઓ

રાજકોટ મહાનગરપાલિકા
સોલિડ વેસ્ટ મેનેજમેન્ટ શાખા
WOW Cell
'ડો. આંબેડકર ભવન, ઢેબરભાઇ રોડ, રાજકોટ

Azadi@75 સ્વચ્છ સર્વેક્ષણ #MeraShahar,MeriPehchan 2024

રા.મ.ન.પા./સો.વે.મે./જા.નં.-6445 તા.30-03-2024

હુકમ:

સંદર્ભ: રા.મ.ન.પા./સો.વે.મે./જા.નં ૮૬૬, તા. ૦૪-૦૬-૨૦૧૯

રાજકોટ મહાનગરપાલિકા વિસ્તારમાં વિકાસ કામો અને બાંધકામ પ્રવૃત્તિનો ખૂબ જ ઝડપથી વિકાસ થઈ રહેલ છે. જેના પરિણામે શહેરમાં કન્સ્ટ્રક્શન એન્ડ ડિમોલિશન વેસ્ટ પણ ખૂબ બહોળા પ્રમાણમાં ઉત્પન્ન થાય છે. આથી તેના કલેક્શન તથા યોગ્ય પદ્ધતિથી નિકાલની ખૂબ જ વિકટ સમસ્યા ઊભી થાય છે. કન્સ્ટ્રક્શન એન્ડ ડિમોલિશન (સી & ડી) વેસ્ટ રુલ્સ -2016 પ્રમાણે આ વેસ્ટનું કલેક્શન, સ્ટોરેજ તથા પ્રોસેસિંગ કરી યોગ્ય નિકાલ કરવો જરૂરી છે. જે અન્વયે આ અગાઉ ઉપરોક્ત સંદર્ભિત હુકમથી શહેરમાં ઉત્પન્ન થતા સી & ડી વેસ્ટના નિકાલ અન્વયેની માર્ગદર્શિકા નિયત કરવામાં આવેલ. જેની વધુ અસરકારકતા તથા કાર્યક્ષમતા સાથે પરિણામલક્ષી કામગીરી થઇ શકે તે માટે હવે પછીથી નીચે જણાવ્યા મુજબની વિગતે અમલવારી કરવા હુકમ કરવામાં આવે છે.

(૧) રાજકોટ મહાનગરપાલિકાની ટાઉન પ્લાનિંગ શાખા દ્વારા શહેરમાં આવેલ હયાત/જુના બાંધકામ ધરાવતી ઈમારતોને સ્થાને નવું બાંધકામ કરવા માટેની બાંધકામ પરવાનગી ઇસ્યુ કરતા પહેલા હાલની વ્યવસ્થા મુજબ જે ડિમોલિશન ચાર્જ લેવામાં આવે છે તેની સાથે શહેરમાં આવેલ આવી જૂની ઈમારતોનું બાંધકામ માલિક/કબજેદાર/ડેવલપર દ્વારા દૂર કરવાથી કેટલો સી & ડી વેસ્ટ ઉત્પન્ન (Generate) થશે તે બાંધકામ પરવાનગી અર્થે પ્લાન સહીતની વિગતો રજૂ કરનાર પરવાનેદાર એન્જિનિયરશ્રી/આર્કિટેકટશ્રી મારફત પ્રમાણિત કરાવી તેના જથ્થા મુજબ અને બાંધકામની પરવાનગીના પ્રકાર મુજબ આ ઉત્પન્ન થનાર સી & ડી વેસ્ટને નાકરાવાડી ખાતે આવેલ સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે નિકાલ કરવા માટેની ડિપોઝિટની રકમ પેટે રૂપિયા ૫૦૦૦/- (અંકે રૂપિયા પાંચ હજાર પુરા) વસુલવાની રહેશે. આ પ્રકારના તમામ કિસ્સાઓમાં ડીપોઝીટની રકમ જમા થયા બાદ જ ટાઉન પ્લાનિંગ શાખા દ્વારા શરતી બાંધકામ પરવાનગી (Conditional Permission) આપવાની રહેશે, તથા સદરહુ શરતી બાંધકામ પરવાનગીમાં સંલગ્ન જૂની ઈમારતના સી & ડી વેસ્ટને ટ્રાન્સપોર્ટ કરી સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે મોકલી આપવામાં આવ્યાનું પ્રમાણિત થયા બાદ જ ટાઉન પ્લાનીંગ શાખા દ્વારા બાંધકામ પરવાનગી આપવામાં આવશે અને ત્યારબાદ જ અરજદારશ્રી દ્વારા નવું બાંધકામ શરૂ કરવાનું રહેશે તેવો ઉલ્લેખ કરવાનો રહેશે.

શરતી બાંધકામ પરવાનગી મેળવ્યા બાદ અરજદારશ્રી દ્વારા તેઓના જુના મકાન/ઈમારતના ડીમોલીશનને કારણે નીકળેલ સી & ડી વેસ્ટને રાજકોટ મહાનગરપાલિકાના નાકરાવાડી ખાતે આવેલ સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ પર મોકલવાની વ્યવસ્થા કરી નિકાલ કરવાનો રહેશે, તથા સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતેથી આ અંગેની પહોંચ (રીસીપ્ટ)/પ્રમાણપત્ર મેળવી લેવાનું રહેશે.

સી. & ડી. વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે શહેરમાંથી સી & ડી વેસ્ટના નિકાલ અર્થે આવેલ મટીરીયલ અંગેનું રજીસ્ટર નિભાવવાનું રહેશે, તથા પ્લાન્ટ ખાતે સી & ડી વેસ્ટ લઇને આવેલ તમામ વાહન તથા તેના સી & ડી વેસ્ટના જથ્થાની નોંધ ઓનલાઈન નિયત એપ્લીકેશનમાં કરવાની રહેશે. પ્લાન્ટ ખાતે મેળવવામાં આવેલ સી & ડી વેસ્ટ મટીરીયલની પહોંચ (રીસીપ્ટ)/પ્રમાણપત્ર આપવા અંગેની જરૂરી તમામ વ્યવસ્થા સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટની એજન્સી દ્વારા કરવાની રહેશે.

ટાઉન પ્લાનિંગ શાખા દ્વારા ઉપરોક્ત જણાવ્યા મુજબ જુના બંધકામ/ઈમારતના ડીમોલીશનને કારણે ઉત્પન્ન થયેલ સી & ડી વેસ્ટને અરજદારશ્રી દ્વારા નાકરાવાડી ખાતેના સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે

મોકલ્યાની ખરાઈ (Confirmation) કર્યા બાદ જ અરજદારશ્રી દ્વારા જમા કરવામાં આવેલ ડીપોઝીટની રકમ રૂ.૫૦૦૦/- (અંકે રૂપિયા પાંચ હજાર પુરા) પરત કરી બાંધકામ પરવાનગી ઇસ્યુ કરવાની રહેશે.

(૨) ટાઉન પ્લાનિંગ શાખા દ્વારા કન્સ્ટ્રક્શન એન્ડ ડીમોલિશન વેસ્ટ રૂલ્સ 2016 ની માર્ગદર્શિકા મુજબ શહેરમાં જૂનો ઇમલો દૂર કરનાર એજન્સીઓ - કોન્ટ્રાક્ટરો દ્વારા સી & ડી વેસ્ટનું કલેક્શન તથા તેનું જરૂરી સેગ્રીગેશન કરી રાજકોટ મહાનગરપાલિકાના નાકરાવાડી ખાતે આવેલ સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે નિકાલ કરવાનું ફરજીયાત હોવાની બાબતની સમજ આપી તેઓનું રજીસ્ટ્રેશન કરાવી રાજકોટ મહાનગરપાલિકાની વેબસાઇટ પર શહેરમાં ઈમલો દૂર કરવાની કામગીરી કરતી આવી તમામ એજન્સીઓ – કોન્ટ્રાક્ટરોની યાદી મૂકવાની રહેશે.

(૩) સોલિડ વેસ્ટ મેનેજમેન્ટ વિભાગ દ્વારા હાલ રાજકોટ મહાનગરપાલિકાના ત્રણેય ઝોનના જુદા જુદા વોર્ડ – વિસ્તારના પ્લોટ તથા રસ્તાઓની સાઈડમાં પડેલ સી & ડી વેસ્ટને કલેકટ કરી નાકરાવાડી ખાતે આવેલ સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટની જરૂરીયાત મુજબ પ્લાન્ટ ખાતે પહોંચાડવા (Transportation) ની વ્યવસ્થા કરવાની રહેશે, તથા શહેરના જાહેર રસ્તાઓ કે રાજકોટ મહાનગરપાલિકાના પ્લોટ પર અનઅધિકૃત રીતે સી & ડી વેસ્ટ ડમ્પિંગ ન થાય તે અંગેની તકેદારી રાખવા માટેની જરૂરી વ્યવસ્થા ઉભી કરવાની રહેશે.

(૪) રાજકોટ મહાનગરપાલિકાની તમામ તાંત્રિક શાખા દ્વારા તેમના કાર્યક્ષેત્ર હેઠળ સિવિલ કામ કરતી તમામ એજન્સીઓ (ઝોનલ તથા ટેન્ડર કામ) ને સોંપવામાં આવેલ સિવિલ કામગીરી અંતર્ગત ઉત્પન્ન થનાર સી & ડી વેસ્ટના સંપૂર્ણ જથ્થાનો નિકાલ રાજકોટ મહાનગરપાલિકાની નાકરાવાડી ખાતે આવેલ સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે કરાવવાનો રહેશે.

આ માટે ઉત્પન્ન થયેલ સી & ડી વેસ્ટના જથ્થાને સંલગ્ન તાંત્રિક કામગીરી સંભાળતા એ.એ.ઈ.શ્રી તથા એ.ઈ.શ્રી દ્વારા તેમના નાયબ કાર્યપાલક ઇજનેરશ્રી મારફતે પ્રમાણિત કરાવી તે સી & ડી વેસ્ટના જથ્થાને સિવિલ કામની સંલગ્ન એજન્સી દ્વારા ટ્રાન્સપોર્ટેશનની વ્યવસ્થા કરી શહેરમાં અન્ય કોઈપણ જગ્યાએ નિકાલ ન કરી માત્ર નાકરાવાડી ખાતે આવેલ સી & ડી વેસ્ટ પ્રોસેસિંગ પ્લાન્ટ ખાતે જ જમા કરાવવાનો રહેશે, તથા પ્લાન્ટ ખાતેથી તે અંગેની પહોંચ (રીસીપ્ટ)/પ્રમાણપત્ર મેળવવાનું રહેશે. જે પહોંચ (રીસીપ્ટ)/પ્રમાણપત્ર સંલગ્ન તાંત્રિક શાખામાં રજુ થયા બાદ તેને સંલગ્ન તાંત્રિક સ્ટાફ દ્વારા ચકાસણી કર્યા બાદ જ સંલગ્ન નાયબ કાર્યપાલક ઇજનેરશ્રી દ્વારા એજન્સીએ કરેલ કામની રકમનું ચૂકવણું કરવા માટેની બીલ અંગેની કાર્યવાહી હાથ ધરવાની રહેશે.

(૫) રાજકોટ શહેરમાં ઉત્પન્ન થનાર સી & ડી વેસ્ટનો મહત્તમ રીયુઝ તથા રિસાયકલ થાય તે માટે કઈ કઈ બાંધકામ ઉપયોગી વસ્તુઓ (મટીરીયલ) બનાવી શકાય તથા તે તમામ મટીરીયલનો રાજકોટ મહાનગરપાલિકાના વિવિધ તાંત્રિક કામોમાં ઉપયોગ થાય તેવા મટીરીયલનો રાજકોટ મહાનગરપાલિકાના શેડ્યુલ ઓફ રેઈટસ (S.O.R.) માં સમાવેશ કરવા તથા રાજકોટ મહાનગરપાલિકાના વિવિધ સિવિલ કામમાં તેનો ઉપયોગ થાય તે સુનિશ્ચિત કરવા માટેની જરૂરી કાર્યવાહી હાથ ધરવાની રહેશે.

ઉપરોક્ત વિગતે સોંપવામાં આવેલ કામગીરીનો રિપોર્ટ નાયબ કમિશનરશ્રી (ઈસ્ટ ઝોન)ને કરવો. સદરહુ હુકમનો અમલ તાત્કાલિક અસરથી ચુસ્તપણે કરવાનો રહેશે.

કમિશનર
રાજકોટ મહાનગરપાલિકા

રાજકોટ મહાનગરપાલિકા

"વેરા-વસુલાત શાખા"

રૂમ નં. ૫, પશ્ચિમ વિભાગ ઓફીસ, હરિસિંહ ગોહિલ ભવન, ૧૫૦ ફૂટ રીંગ રોડ, રાજકોટ

રા.મ.ન.પા\વે.વ\વે.ઝો.જા:-59 તા.23/04/2024

સુધારા પરિપત્ર:

વિષય: રાજકોટ મહાનગરપાલિકાની વિવિધ કામગીરી અંતર્ગત "વ્યવસાય વેરા" નોંધણી યકાસવા બાબત

સંદર્ભ: (૧) "ગુજરાત રાજ્ય વ્યવસાય, વ્યાપાર, ધંધા અને રોજગાર અધિનિયમ, ૧૯૭૬"
(૨) ગુજરાત સરકારશ્રીના નાણા વિભાગના નોટીફિકેશન નં.- જીએચએન.૯૯પી.એફ.ટી.-૨૦૦૬ તા: ૨૦/૦૮/૨૦૦૬
(૩) વેરા વસુલાત શાખા પરિપત્ર તા. ૨૭/૦૨/૨૦૦૭
(૪) અન્ય કર સેલ ફાઇલ નં ૨૧ વર્ષ ૨૦૨૩-૨૪

સંદર્ભ (૨)નાં ગુજરાત સરકારશ્રીના હુકમ અન્વયે, વ્યવસાય વેરા ઉઘરાવવાની સત્તા સ્થાનિક સ્વરાજ્યની સંસ્થાને સોપવામા આવેલ છે. રાજકોટ મહાનગરપાલિકાની વેરા વસૂલાત (અન્ય કર સેલ) શાખા દ્વારા રાજકોટ શહેર વિસ્તારમાં વ્યવસાયિકો પાસેથી "ગુજરાત રાજ્ય વ્યવસાય, વ્યાપાર, ધંધા અને રોજગાર અધિનિયમ, ૧૯૭૬"ની જોગવાઇઓ હેઠળ વ્યવસાયવેરો વસૂલવામાં આવે છે.

રાજકોટ શહેર-ખાતે "ગુજરાત રાજ્ય વ્યવસાય, વ્યાપાર, ધંધા અને રોજગાર અધિનિયમ, ૧૯૭૬" મુજબ રાજકોટ શહેરમાં વ્યવસાય કરતા એકમો/વ્યક્તિ/પેઢીઓ/સંસ્થાઓ વિગેરેને વ્યવસાય વેરા માટે નોંધણી કરવાની રહે, જે અંતર્ગત રાજકોટ શહેર ખાતે વ્યવસાય કરતાં, સ્વતંત્ર વ્યવસાયિકો જેવા કે આર્કિટેક્ટ, કન્સલ્ટીંગ એન્જીનીયર્સ, ચાર્ટર્ડ એકાઉન્ટન્ટ, તબીબો, નોટરી, સ્ટેમ્પ વેન્ડર, વકીલ/સોલીસીટર, વિમા એજન્ટો વિગેરેએ પણ ઉક્ત અધિનિયમની જોગવાઇઓ હેઠળ વ્યવસાય વેરો ભરવાનો થાય છે.

રાજકોટ મહાનગરપાલિકાનાં વિવિધ વિભાગોની કામગીરીનો વ્યાપ વધવા પામેલ છે. વિવિધ વિભાગો દ્વારા "આઉટ સોર્સિંગ" એજન્સી મારફત કામગીરી કરાવવામાં આવે છે. તેમજ રાજકોટ મહાનગરપાલિકા જરૂરિયાત મુજબ વખતો વખતો જરૂર પ્રમાણે રેઈટ કોન્ટ્રાક્ટથી વસ્તુ/સેવાઓ પૂરી પાડવા એજન્સીઓ પણ નીમેલ છે. રાજકોટ મહાનગરપાલિકાની શાખાઓ દ્વારા અરજી મુજબ પરવાનો/મંજુરી/લાઇસન્સ પણ આપવામાં આવે છે. આ સમગ્ર કામગીરી વ્યવસાય અનુલક્ષીને હોય, ત્યારે "વ્યવસાય વેરા"ની જોગવાઈ મુજબ જે તે અરજદાર/એકમ/આસામી/વ્યવસાયિક વિગેરે "વ્યવસાય વેરા" નોંધણી પાત્ર બને.

ઉક્ત વિગતો ધ્યાને લઇ, હવે પછીથી રાજકોટ મહાનગરપાલિકા દ્વારા કરવામાં આવતી નીચે મુજબ કામગીરી સબબ "વ્યવસાય વેરા" નોંધણી અને વેરો ચૂકવ્યાની રસીદ અરજી સાથે મેળવવાની રહેશે.

શાખા	કામગીરી
ટાઉન પ્લાનિંગ શાખા	• વ્યવસાયિક એકમ દ્વારા નવા રીવાઇઝડ બિલ્ડીંગ પ્લાનની અરજી રજુ કરતી વખતે • ઇમ્પેક્ટ સ્કીમ હેઠળ "વ્યાવસાયિક બિલ્ડીંગ" બિલ્ડીંગ પ્લાનની અરજી રજુ કરતી વખતે • નવા સ્ટ્રકચર એન્જીનીયર/આર્કિટેકટ વિ.ની નોંધણી વખતે
ફૂડ શાખા	• ફુડ લાયસન્સ નવા/રીન્યુની અરજી રજુ કરતી વખતે
આરોગ્ય શાખા	• બોમ્બે નર્સિંગ એક્ટ હેઠળ નોંધણી માટે આવતી અરજી સમયે • મેડિકલ સ્ટોર ખાતે ખરીદી માટે ચૂકવણું કરતાં સમયે • યુ.એચ.સી. તેમજ આરોગ્ય લગત કામગીરી માટે માલ સામાન/સેવાઓનુ ચૂકવણું કરતાં સમયે
સોલીડ વેસ્ટ મેનેજમેન્ટ	• ઇન્ડસ્ટ્રીયલ લાયસન્સ નવા/રીન્યુની અરજી રજુ કરતી વખતે • ડોર ટુ ડોર, ડોર ટુ ડમ્પ અને સાઇટ ટુ ડમ્પ યોજના હેઠળ કચરાનાં નિકાલ માટે ચૂકવણું કરતા સમયે.
શોપ શાખા	• શોપ લાયસન્સ અરજી નવા રીન્યુ રજુ કરતી વખતે
વોટર વર્કસ શાખા	• જે મિલકતનો વપરાશ શરૂ કરેલ હોય, તેવી કોમર્શીયલ હેતુની મિલકતોમાં નળ જોડાણ/કેન્સલ માટેની અરજી કરતી વખતે

રાજકોટ મહાનગરપાલિકા

પરિપત્ર-૫

રાજકોટ મહાનગરપાલિકા

"વેરા-વસુલાત શાખા"

રૂમ નં. ૫, પશ્ચિમ વિભાગ ઓફીસ, હરિસિંહ ગોહિલ ભવન , ૧૫૦ ફૂટ રીંગ રોડ, રાજકોટ

મિલકત વેરા શાખા	• જે મિલકતનો વપરાશ શરૂ કરેલ હોય, તેવી બિન રહેણાંક મિલકતોની આકારણી તેમજ નામ ટ્રાન્સફરની અરજી વખતે
ઓડીટ શાખા	• તમામ "આઉટ સોર્સિંગ" તેમજ "રેઈટ કોન્ટ્રાક્ટ" માટે બહાર પડાયેલ ટેન્ડરની "ટેકનીકલ વેલીડીટી" ચકાસતા સમયે • નોંધાયેલ "વેન્ડર" જયારે વ્યવસાયી પ્રવૃત્તિ સાથે સંકળાયેલ હોય (રેટ કોન્ટ્રાક્ટ, મેનપાવર, આઉટ સોર્સિંગ અને સેવાકીય બાબતો વિગેરે) તેવા ઇસમોના બીલ ચુકવણી માટે રજુ થયે, લાગુ પડતા EC (પેઢીનો) અને RC(કર્મચારીઓનો) વેરો ભરાયાની રસીદ સામેલ રાખવી
હિસાબી શાખા	• નોંધાયેલ "વેન્ડર" જયારે વ્યવસાયી પ્રવૃત્તિ સાથે સકળાયેલ હોય, તેવા ઇસમોને નાણા ચુકવતી વખતે લાગુ પડતા EC (પેઢીનો) અને RC(કર્મચારીઓનો) વેરો ભરાયાની રસીદ સામેલ રાખવી
ટ્રાફિક & ટ્રાન્સપોર્ટ/ બી.આર.ટી.એસ./ આર.એમ.ટી.એસ.	• બસ ઓપરેટર/કોન્ટ્રાકટરને બિલ ચૂકવવા સમયે. • પે એન્ડ પાર્કનો ઇજારો/ડિપોઝિટ પરત કરતાં સમયે.
લીગલ/આઈ.ટી./લેબર વિભાગ	• એડવોકેટ પેનલની નિમણૂક/ચૂકવણું કરતાં સમયે • સમાન/સેવાઓ માટે ચૂકવણું કરતાં સમયે.
ત્રાંત્રિકી શાખા	• માલ સામાન ખરીદ/જેનલ કોન્ટ્રાકટર/સેવાઓ અંગે નાં નાણાં ચૂકવતી વખતે • મેન પાવર સપ્લાઈનું ચૂકવણું કરતી વખતે.
તમામ શાખા	• રાજકોટ મહાનગરપાલિકા દ્વારા "આઉટ સોર્સિંગ" તેમજ "રેઈટ કોન્ટ્રાક્ટ"થી સેવા/વસ્તુ મેળવવાના ટેન્ડરમાં "ટેકનીકલ એલીજીબીલીટી" નિયત કરતી વખતે. • પ્રવર્તમાન નિમાયેલ એજન્સીઓ, જે રાજકોટ મહાનગરપાલિકા સાથે કામગીરી માટે સંકળાયેલી છે, તેઓ આ નિયમો સાથે જોડાઈ તે જોવાની જવાબદારી જે તે શાખાધિકારીની રહેશે.

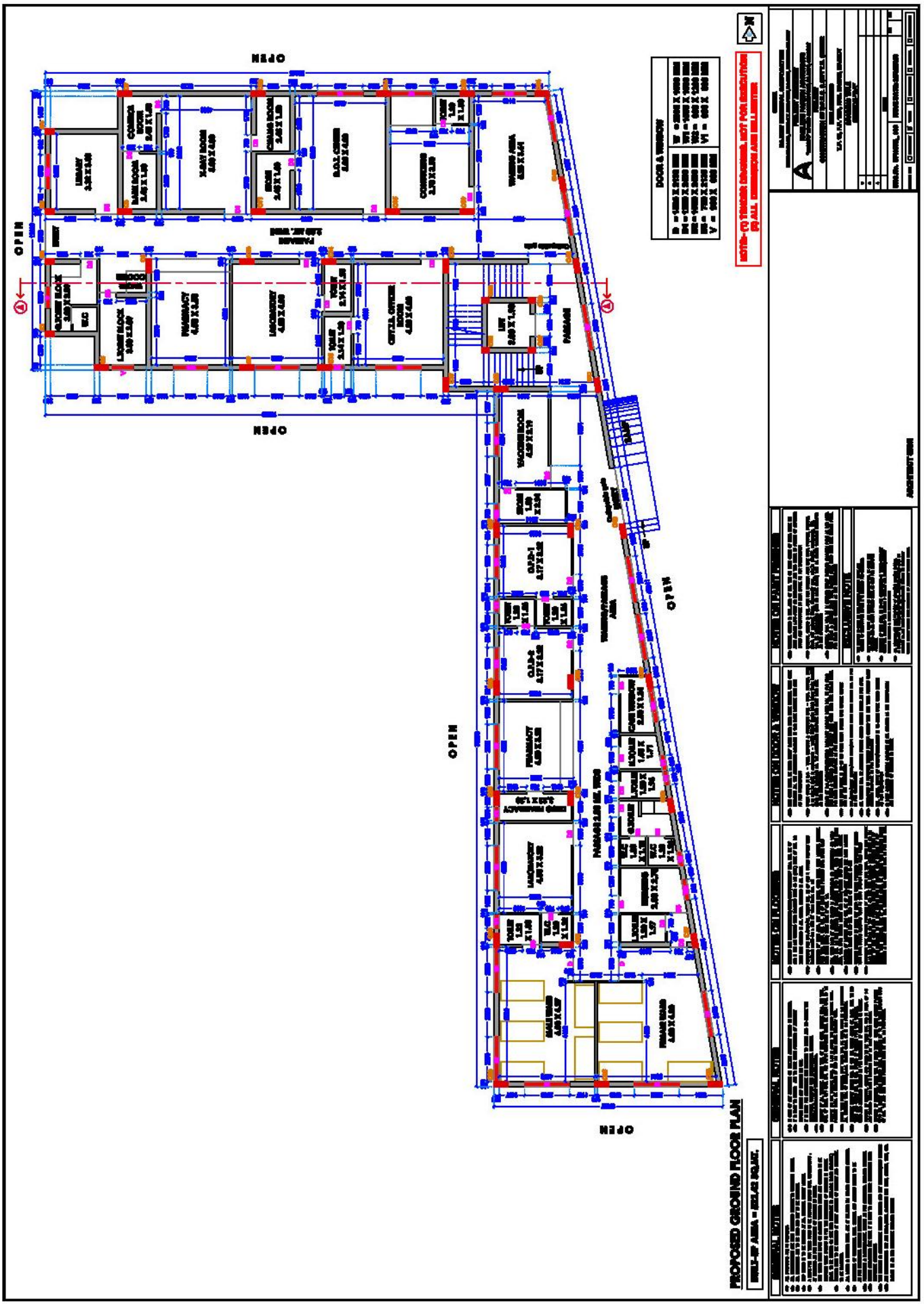
ઉક્ત વિગતો ધ્યાને લઇ હવે પછીથી, રાજકોટ મહાનગરપાલિકાની તમામ શાખાઓએ ઉપરોક્ત જણાવેલ કામગીરી કરતી વખતે "વ્યવસાય વેરા" અંગેની જોગવાઈ ધ્યાને રાખવાની રહેશે. ટેન્ડર બહાર પાડવાથી લઇ, એજન્સી દ્વારા કામગીરી સબબ બીલ રજુ થયેના સપૂર્ણ સમય ગાળા દરમિયાન એજન્સી દ્વારા વ્યવસાય વેરો ચૂકતે કરેલ છે કે કેમ? તે ચકાસ્યા બાદ જ આગળની કામગીરી કરવી. જે એજન્સી વ્યવસાય વેરામાં નોંધાયેલ ન હોય, તેઓની સત્વરે "ગુજરાત રાજ્ય વ્યવસાય, વ્યાપાર, ધંધા અને રોજગાર અધિનિયમ, ૧૯૭૬"ની જોગવાઈઓ અંતર્ગત નોંધણી કરાવવાની રહેશે.

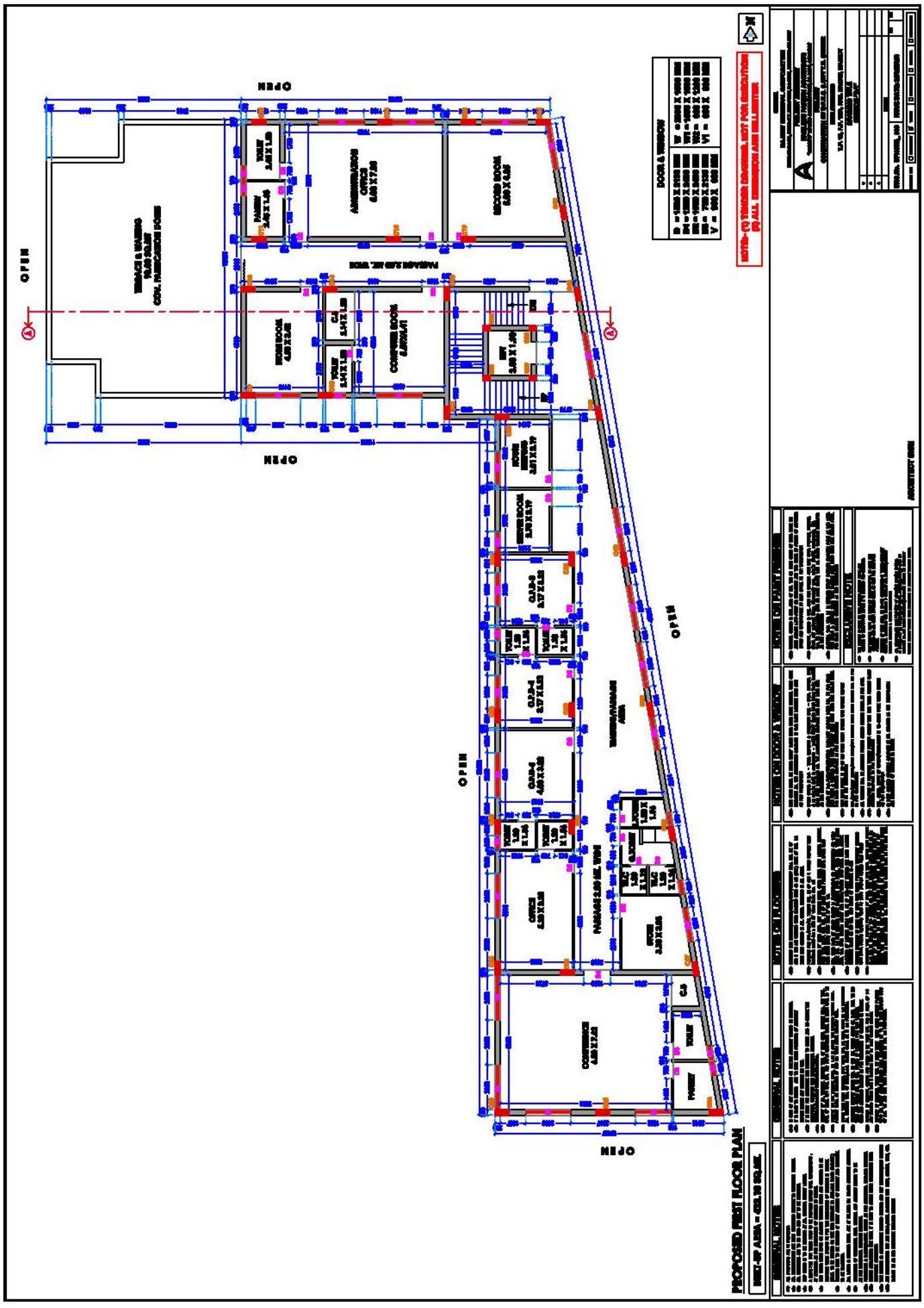
કમિશનર
રાજકોટ મહાનગરપાલિકા

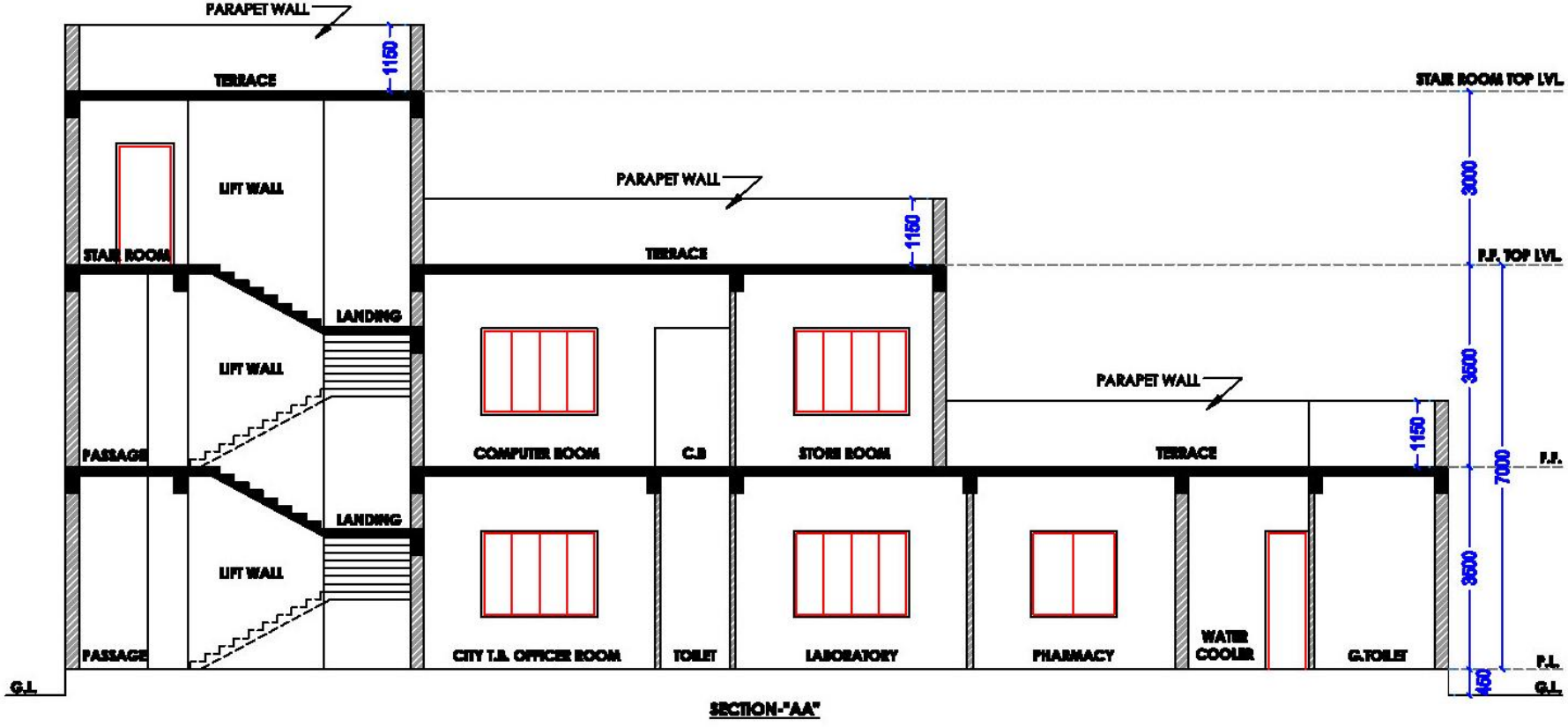
નકલ રવાના:

- સંબંધકર્તા સર્વે


SITE PLAN

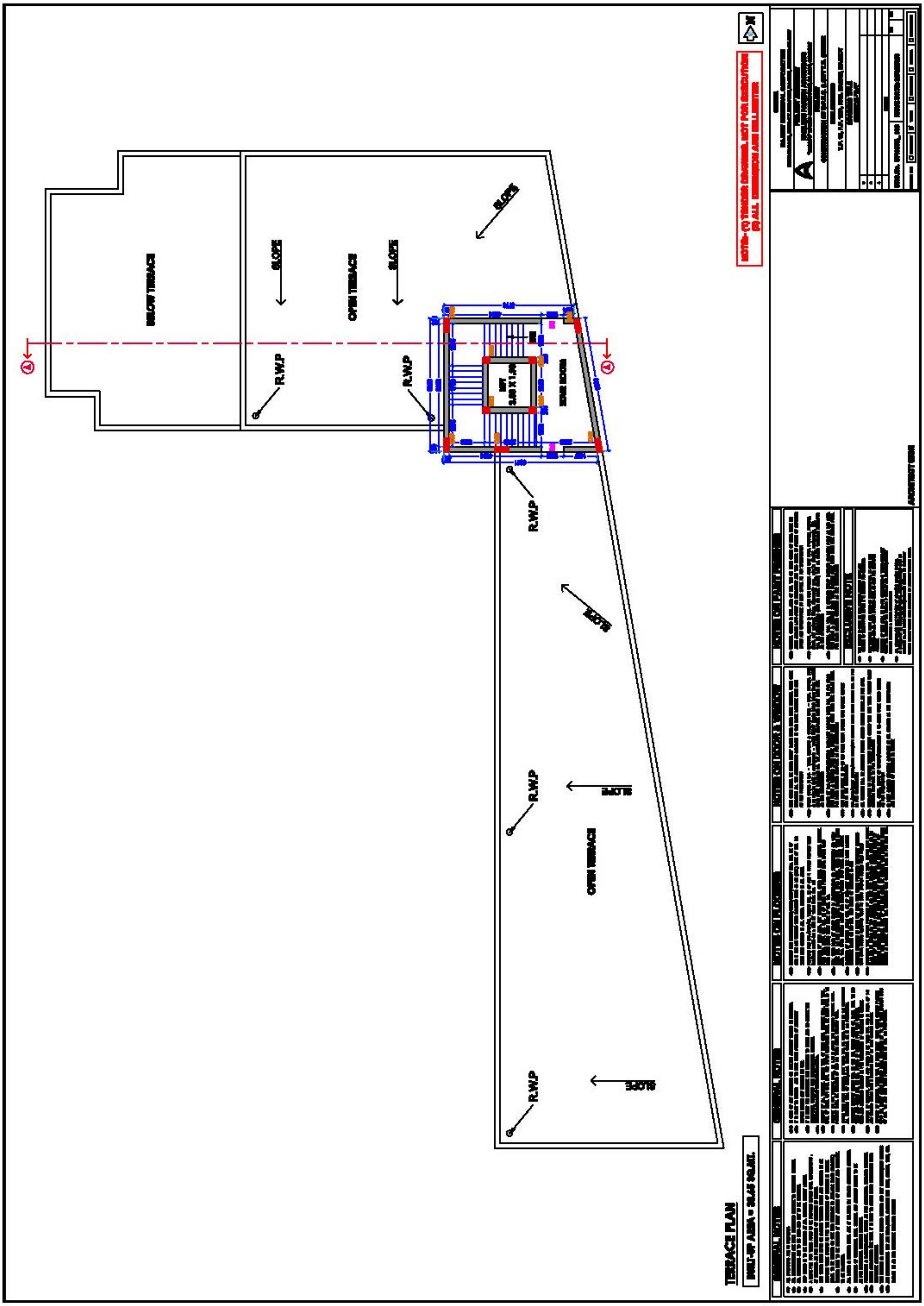

OPEN
OPEN
OPEN
OPEN
PROPOSED GROUND FLOOR PLAN





SECTION-"AA"

NOTE:- (1) TENDER DRAWING, NOT FOR EXECUTION
(2) ALL DIMENSION ARE MILLIMETER


TERRACE PLAN
BELOW TERRACE
OPEN TERRACE
OPEN TERRACE
SLOPE
R.W.P