

# RAJKOT MUNICIPAL CORPORATION

e-Tender No. RMC/ENGG/CZ/23-24/



## Bid Documents For CONSTRUCTION OF BOX CRICKET AT RACE COURSE (RE-TENDER)



Milestone dates for e-tendering areas under	
1. Downloading of e-documents	09-07-24 To 22-07-24 upto 18:00Hrs.
2. Pre-bid meeting in the O/o CE	12-07-24 at 16:00 Hrs
3. Last date for on line submission of e-Tender	22-07-24 upto 18:00Hrs.
4. Submission of EMD, Tender fee and other documents for verification by Regd. Post. A.D. / Speed Post	Before 24-07-24 upto 18.00Hrs.
5. Opening of Technical Bid	25-07-24 at 11:00 Hours onwards
6. Verification of submitted documents (EMD, e - Tender fee, etc.)	25-07-24 at 11:00 Hours onwards
7. Agency to remain present with original documents for verification	26-07-24 between 16:00 to 17:00Hrs
8. Opening of Price Bid (For Technically qualified bidder only)	29-07-24 at 11:00 Hours onwards
9. Bid Validity	180 Days

**2024-25**

**ADDL. CITY ENGINEER RAJKOT  
MUNICIPAL CORPORATION  
DR. AMBEDKAR BHAWAN CENTRAL  
ZONE, DHEBAR BHAI ROAD,  
RAJKOT-360001 (GUJARAT)**

# **RAJKOT MUNICIPAL CORPORATION**

## **BID DOCUMENT FOR**

### **CONSTRUCTION OF BOX CRICKET AT RACE COURSE (RE-TENDER)**

#### **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**

Bill of Quantities (With Price)

# ABBREVIATIONS

Statementshowingthedetailsofabbreviations

<b>FullForm</b>	<b>Abbreviation</b>
ADDL.CITYENGINEER	ACE
OperationandMaintenance	O&M
NetPresentValue	NPV
EngineeringProcurementandConstruction	EPC
PaschimGujaratVijCo.Ltd.	PGVCL
CriticalPathMethod	CPM
ReinforcedCementConcrete	RCC
HighGroundLevelReservoir	HGLR
Kilometer	KM
MildSteel	MS
BureauofIndianStandard	BIS
AmericanWaterWorksAssociation	AWWA
AmericanPetroleumIndustries	API
MillionLiterperDay	MLD
HighYieldStrengthDeformedbar	HYSD
CorrosionResistanceSteel	CRS
OrdinaryPortlandCement	OPC
AmericanStandardforTestingofMaterial	ASTM
FluxCompensatedMagneticAmplifier	FCMA
CostInsuranceandFreight	CIF
FreeOnBoard	FOB
EX-Works	EXW

**PART -  
SECTION-1**

**INVITATIONFORBIDS**

**RAJKOT MUNICIPAL CORPORATION**  
**e-TENDER NOTICE**

Thee-Tender sareinvited with two bid system bye-Tendering from the experienced contractors registered in GWSSB / StateGovernment /CentralGovernment / Semi Government in appropriate eclass for belo wmentioned work:

Sr No	Nameofwork	a) EstimatedcostinRs. b) EMD c) E-TENDERfee d) Time limit forcompletionofwork
1	CONSTRUCTION OF BOX CRICKET AT RACECOURSE (RE-TENDER)  <b>e-TENDER No.RMC/ENGG/CZ/24-25/</b>	a)Rs.30,03,990/- (without GST) b)Rs.30,040/- c)Rs.1,875/- d)90 days

<b>Milestonedatesfore-tenderingareasunder</b>	
1.Downloading of e-documents	09-07-24 To 22-07-24 upto 18:00Hrs.
2.Pre-bid meeting in the O/o CE	12-07-24 at 16:00 Hrs
3.Last date for on line submission of e-Tender	22-07-24 upto 18:00Hrs.
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5.Opening of Technical Bid	25-07-24 at 11:00 Hours onwards
6.Verification of submitted documents (EMD, e - Tender fee, etc.)	25-07-24 at 11:00 Hours onwards
7.Agency to remain present with original documents for verification	26-07-24 between 16:00 to 17:00Hrs
8.Opening of Price Bid (ForTechnically qualifiedbiddersonly)	29-07-24 at 11:00 Hours onwards
9.Bid Validity	180 Days

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-operativeBank) in India. Thereceiptof professional tax paid for current year,addressproof,tenderappendixdetailsandIDproofshallhaveto besubmittedalong with physical submission of required documents shall havetobedoneatthebelowmentionedaddress:

*Officeofthe*ADDL.CITYENGINEERRa  
jkotMunicipalCorporation,  
DR.AMBEDKARBHAWAN,  
CENTRAL ZONE  
Office,DHEBARBHAIROA  
D,  
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 "E1" Class registration
4. Minimum amount of solvency should be Rs.2.00 lakhs

**ii) Experience Criteria:**

The bidder should possess following minimum experience:

1. Bidder should have completed at least one work of civil & Gardening work of amounting to **60% OR** two works amounting to **50%** of tender amount in last seven years either in government or Semi-government as a main contractor.
2. Bidder should have enough machinery and experienced personnel to supervise the work.

**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 (2023-24)	1.00
2	Current Year-1 (2022-23)	1.10
3	Current Year-2 (2021-22)	1.21
4	Current Year-3 (2020-21)	1.33
5	Current Year-4 (2019-20)	1.46
6	Current Year-5 (2018-19)	1.61
7	Current Year-6 (2017-18)	1.77
8	Current Year-7 (2016-17)	1.95

4. The contractor shall have to quote their rates excluding GST and including other taxes and the Invoice with break-up of GST is to be submitted accordingly, failing which, such amount will be deducted from the bill of the agency and deposited accordingly.

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.

**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 fail 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 outrightly 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 outrightly. 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 outrightly.
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 whatever 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 outrightly 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 tender(s) without assigning any reasons thereof.

**ADDL. CITY ENGINEER**  
**Rajkot Municipal Corporation**

# ELIGIBILITY CRITERIA



### 1. Experience Criteria:

The bidders should possess following minimum experience:

1. Bidders should have completed at least one work of similar nature amounting to **60% OR** two works amounting to **50%** of tender amount in last seven years either in or Semi-government as a main contractor.
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. 2.00 lakhs
- (4) Available bid capacity- ABC must be more than the estimated tender amount. The bidding capacity shall be worked out using the following formula:

$$\text{Bidding capacity} = [2 * \mathbf{A} * \mathbf{N}] - \mathbf{B} = \text{_____} \text{ (to be filled by Applicant)}$$

**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 enhancement factor for respective year will be considered to arrive at current financial year:

Sr	Year	Enhance factor
1	Current Year (2023-24)	1.00
2	Current Year-1 (2022-23)	1.10
3	Current Year-2 (2021-22)	1.21
4	Current Year-3 (2020-21)	1.33
5	Current Year-4 (2019-20)	1.46
6	Current Year-5 (2018-19)	1.61
7	Current Year-6 (2017-18)	1.77
8	Current Year-7 (2016-17)	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 (as per the prevailing list of GWSSB), 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 any other product

**ADDL. CITY ENGINEER  
Rajkot Municipal Corporation**

**Name and signature of Bidder**

**INSTRUCTIONS  
TO  
BIDDERS**

# **INSTRUCTIONS TO BIDDER**

## **IT1. 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.

## **IT2. 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.

## **IT3. 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.

## **IT4. 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 Bidders 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 (Job 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.

## **IT5. e-TENDER DOCUMENTS**

The e-Tender documents and drawings shall comprehensively be referred to as e-TENDER document. These 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.

## **IT6. 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.3,000-00.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 stipulated 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 insofar as may be necessary to comply with any addenda issued pursuant to Clause IT.17 hereof.

**IT7. EARNEST MONEY DEPOSIT:**

A. Each Bidder must submit a receipt of deposit as Tender guarantee towards **Earnest money** amounting to **Rs.30,040/-** in the form of crossed Demand Draft in favor of "Rajkot Municipal Corporation", from any Scheduled 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.

**~~IT8. 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.~~

**IT9. 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 figure wherever 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.

**IT10. 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. Certificate as registered contractor in appropriate class with Government of Gujarat to 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-Tenders 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 or persons 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.

**IT11 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 withdraw 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.

**IT12 GENERAL PERFORMANCE DATA**

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

**IT13 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 firm 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 stated below their signatures. All the signatures in the e-Tender documents shall be dated.

**IT14 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.

**IT15 INTERPRETATION 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 an addendum.

#### **IT16 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.

#### **IT17 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.

#### **IT18 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' forms shall be supplied.

#### **IT19 EVALUATION OF 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.

#### **IT20 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 **4 Months** from the date of issue of notice to proceed and contractor should adhere to this completion time. ~~Monsoon period from 1<sup>st</sup> July to 30<sup>th</sup> September will be considered as non-working period and hence excluded in time limit.~~

#### **IT21 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.



## **IT22 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.

## **IT23 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.

## **IT24 AWARD**

Award of the contract or the rejection of 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 Bidders shall execute the Contract Agreement within the time stated and shall furnish the Bond as required herein. The contract Agreements 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.

## **IT25 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 to annul 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).

## **IT26 DISQUALIFICATION**

- Ae-Tenders 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.7i.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.13i.e. signing of e-Tender documents).
  - (d) The general performance data for qualification is not submitted fully (as per Article IT.12i.e. General performance Data).
  - (e) Bidder does not agree to payment terms defined as per Article IT.23i.e. payment terms.

**A. Ae-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.11i.e.e-Tender validity period.
- (d) Any of the page or pages of e-Tender is/are removed or replaced.
- (e) Any conditional tender.

**IT27 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 work 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.**

**IT28 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.

**IT29 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 or higher quality than the standard mentioned and meets Corporation approval.

**IT30 NON TRANSFERABLE**

e-TENDER documents are not transferable.

**IT31 COST OF e-Tendering**

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

**IT32 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.

**IT33 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 schedule of prices as may be necessary.

**IT34 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.

**IT35 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.

**IT36 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 award of contract.

**IT37 MOBILIZATION ADVANCE**

No mobilization advance or advance on machinery will be given.

**IT38 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 details specifications. No condition will be accepted. The conditional e-Tender will be liable to be rejected.

**IT39 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.

**IT40 ESIR 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.

**IT41 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.

**IT42 PF CODE:**

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

**IT43 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.

**IT44 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  
R.M.C.**

**Dy.Ex.Engineer  
R.M.C.**

**ADDL.CITYENGINEER  
R.M.C.**

**Signature of Contractor with Seal**

# **FORMATS**

Financial&OtherStatements

**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.**

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**STATEMENT NO-1**

**DECLARATION**

I/We

\_\_\_\_\_ hereby declared that I am/We partner(s) are not blacklisted or Terminated or Debarred or suspended, backed out, delisted or connected with firm blacklisted 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.

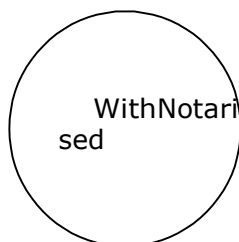
At present I am/we are registered as approved contractor(s), firm(s) in \_\_\_\_\_ State, CPWD/MES/Railways.

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



## **STATEMENTNO-2**

### **APPLICABILITYOFPROVIDENTFUNDANDMISCELLANEOUSPROVISIO NSACT1952**

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 the employer's contribution towards provident fund on labour charges / wages paid by us to the labourers 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:  
Bidder**

**Seal and Signature of the**

**STATEMENT NO.-3**

**CURRICULAM VITAE**

<b>Sr.No.</b>	<b>Detailsofperson</b>	
1.	Name	
2.	Age	
3.	Qualifications	
4.	ExperienceinProjectRelatedfield	
5.	Otherexperiences	
6.	EmploymentRecord.	

<b>Sr.No.</b>	<b>Period From - To</b>	<b>Organization under whichwork</b>	<b>Status /positionin the</b>




**Note:**

- (1) Separatesheetforeachpersontobefurnishedasabove.
- (2) Thecontractor'sProjectTeamshouldconsistofpersonsinthefol  
lowingdisciplines.
  - a) SeniorEngineerwithexperienceofBuildingwork
  - b) SeniomaterialEngineer.
  - c) SeniorQuantitySurveyor.
  - d) Projectmanagementexpert.
  - e) Siteincharge

## **STATEMENT-4**

### **INFORMATION REGARDING FINANCIAL CAPACITY OF THE CONTRACTORS**

<b>Sr.</b>	<b>Details</b>	<b>Amount(Rs.inlaks)</b>	<b>Remarks</b>
1.	Solvency		ABanker'sCertificateofcurrent financial year may please be attached .
2.	Annual Turnover for the last seven years.		Certified true copy to be attached
3.	Price of biggest similar nature job carried out		Certified true copy to be attached

**STATEMENT NO.-4/A**

**BIDDER'S FINANCIAL CAPACITY**

<b>Sr.No.</b>	<b>Financial Year</b>	<b>Annual Turn over in Engineering Projects.</b>	<b>Net worth Rs.</b>	<b>Net Cash Rs.</b>	<b>Working Capital Rs.</b>
<b>1</b>	<b>2022-2023</b>				
<b>2</b>	<b>2021-2022</b>				
<b>3</b>	<b>2020-2021</b>				
<b>4</b>	<b>2019-2020</b>				
<b>5</b>	<b>2018-2019</b>				
<b>6</b>	<b>2017-2018</b>				
<b>7</b>	<b>2016-2017</b>				

**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 6 Months the bidder has ability to sustain negative cash balance and how he propose to meet with the same.*
- 4) *Cash Plan/Cash flow Statement.*

**STATEMENT NO.-4/B**

**AVAILABLE BID CAPACITY**

	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>
<b>Value of works executed in Rs. Crores.</b>							

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 work to be discharged 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 60% OF THE ESTIMATED COST COMPLETED DURING THE LAST SEVEN YEARS.**

<b>Sr. No</b>	<b>Year of Construction work</b>	<b>Name of Project</b>	<b>Name of owner &amp; contact person of the project, address, phone</b>	<b>Total cost of the work</b>	<b>Total value of work done</b>	<b>Date of starting work</b>	<b>Date of actual completion of work</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
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 50% 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)	Tender 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 2021 (Rs. Lakhs)	Remarks		
									2016	2017	2018	2019	2020	2021	2022			2023	

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



**STATEMENTNO.-5/C**

**DETAILSOFONGOINGPROJECT**

<b>Sr. No</b>	<b>Nameofproject</b>	<b>Value ofremaini ngwork Rs. inlakhs.</b>	<b>Start date</b>	<b>Likelydat e ofcompl etion</b>	<b>Name, address,telephone, fax no. ofprojectauthorityan dcontactperson.</b>



**STATEMENT NO.-6****DETAILS OF PLANT & MACHINERY TO BE DEPLOYED ON THIS WORK**

Name of the contractor/company \_\_\_\_\_

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

**Note:**

*Plant/machinery 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 Bidders 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.

<b>Sr. No.</b>	<b>Components</b>	
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

	<b>Nationalityofowners</b>	
	<b>Name</b>	<b>Nationality</b>
1.		
2.		
3.		
4.		
5.		

<b>NameofBiddersofficers/Personstobecontacted</b>			
<b>Name.</b>	<b>Address</b>	<b>PhoneNos.</b>	<b>Fax.</b>

## Application Form (1A)

### Structure and Organization

<p><b>The applicant is</b>  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)</p>	
<p>Attach the Organization Chart showing the structure of the organization including the names of the Directors and position Officers</p>	
<p>Number of years of experience:  as a Prime Contractor  (contractor shouldering major responsibility  in own country  other countries (specify country)</p>	
<p>in a consortium in  own country  other countries (Specify country)</p>	
<p>as a sub-contractor (specify main contractor)  in own country  other countries (Specify country)</p>	
<p>4. Name and address of any associate 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.</p>	
<p>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?</p>	

<p>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.</p>	
<p>6. Have you ever left the work awarded to you incomplete? If so, give name of project and reasons for not completing work.</p>	
<p>In which fields of civil engineering construction do you claim specialization and interest?</p>	
<p>Give details of your experience in mechanized cement concrete lining and in modern concrete technology for manufacture and quality control.</p>	
<p>Give details of your experience in using heavy earth moving equipment and quality control in compaction of soils.</p>	
<p>Give details of your experience in Underground Drainage work in rocky area.</p>	
<p>Give details of civil work for drainage pumping station</p>	
<p>Give details for construction of sewerage treatment plant</p>	
<p>Give details for pumping machinery in drainage pumping station</p>	

# **GENERAL CONDITIONS OF CONTRACT**



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**GC-01            DEFINITIONS AND INTERPRETATIONS:**

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.

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.

The "Contractor" shall mean the person or the persons, firm or Company whose Tender has been accepted by the Owner and include the Contractor's legal representative, his successors and permitted assignee.

**DELETED**

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.

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.

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

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

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

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

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

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

"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.

The "Specifications" shall mean all directions, the various Technical Specifications, provisions and requirements attached to the contract which pertain 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) thereunder. 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.

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.

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 labor 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.

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.

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

"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.

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.

**"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.

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.

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

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.

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.

"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.

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

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

"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.

"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.

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

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 "LETWORKS".

1.33. Unless otherwise specifically stated, the masculine genders 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 themselves 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 goes 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 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 cases 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 a part thereof or be used in the interpretation or construction of the contract.
4. Unless otherwise stated 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 sections 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 or 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 dra

wings and specifications at the 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. These special directions or dimensions given in the specifications shall supercede 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 explanations 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 Institutions 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 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 expense 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 12 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 a 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) Decides 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 hereinafter called defects in this clause) he shall, as soon as reasonably practicable, 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 steps as may in all circumstances be responsible to make good such defects. The expenditures 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 amount to be paid therefor 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 cases 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 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 whatsoever 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.

Notwithstanding 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 SECURITY 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 ON 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 ensue 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 guarantee 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, whose equipments, 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 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 therewith.
  
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 times 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 owners 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, material 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 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 work 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 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 cooperate and afford reasonable opportunity to other Contractors 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-GC79 (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 arise therefrom.

**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 in circumstances detailed as under:
  - a) If in the opinion of the Corporation, the Contractor fails to make completion of work 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 deem appropriate, plants 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 contracts 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 though 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:**

Work shall 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 LAW 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 OVERPAYMENT AND UNDERPAYMENT:**

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, notwithstanding 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 upheld) 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 matters 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 be 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

ereasonsorforanyreasonsbeyondhiscontroland/ortheCorporationfinditimpos  
sibletocontinueoperation,thenpromptnotificationinwritingshallbegivenbythe  
partyaffectedtotheother.

- 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 time 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 work 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 method 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 over time 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  
In-Charge**

**Engineer-**

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 mark either 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 checked 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 error 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. Material 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 MATERIAL STORES 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 carting to 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 manufacturer's. 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 thereof 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 high rate or not being available in the market then 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 CONSTRUCTION:**

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 then 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% thereon 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 nonsettlement of items falling under this clause.

**GC-71 ACTION WHEN NO SPECIFICATIONS 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 the same it is to be with standard Engineering Practices 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 or 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 damages 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 contract. 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 contract (except in minor respects that do not effect 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 owners shall be deemed to have taken over work on the date so

certified. If work has been divided in various groups in contract, owners shall be entitled to take over any group or groups before the other groups 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 work 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 times 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 of 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 machines to be brought to site for use on work shall be borne by the Contractor.

4. No exemption or reduction of custom duties, excised 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.
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 reason 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 contractor or any part thereof.
2. Five (5) percent of the gross R A 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 on 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 notices shall be given to the Engineer-In-Charge within ten (10) days from the happening of any event upon which Contractor bases such claims and such notices 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 be a 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) months 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" upwork.
  - 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 subcontractors with applicable Central, State, Municipal and local laws and regulations and requirements. Contractor also agrees to defend, indemnify and 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 of 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 harmless 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 reason 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 subcontractors 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 sumas may be necessary from the contract value until Contractor shall furnishesatisfactory proof that all contribution as required by the Employees StateInsuranceAct,1948havebeen paid.

2. **Workman'scompensationandemployeesliabilityinsurance:**Insurance shall be effected for all Contractors employees engaged in theperformance of this contract. If any part of work is sublet, Contractorshall require the sub-Contractor to provide workman's compensation andemployer'sliabilityinsurance,whichmayberequiredbyowner.
3. Other Insurance required under law of regulations or by owner Contractorshall also carry and maintain any and all other insurance which may berequired under any law or regulation from time to time. He shall alsocarryandmaintainanyotherinsurance,whichmayberequiredbyowner.

**GC-90 DAMAGETOPROPERTY:**

1. Contractor shall be responsible for making good to the satisfaction ofowneranylossofandanydamagetoallstructuresandpropertiesbelonging to owner or being executed or procured or being procured byowner or ofother agencieswithin the premisesof all workofowner, ifsuch loss or damage is due to fault and / or the negligence of willful act oromission of Contractor, his employees, agent, representatives or sub-Contractors.
2. Contractor shall indemnify and keep owner harmless of all claims fordamage to properties other than property arising under by reasons of thisagreement, such claims result from the fault and / or negligence or willfulact or omission of Contractor, his employees, agents representative orsub-contractor.

**GC-91 CONTRACTORTOINDEMNIFYOWNER:**

1. The Contractor shall indemnify and keep indemnified the owner and everymember, officer and employee of owner from and against all actions,claims, demands and liabilities whatsoever under the in respect of thebreach of any of the above clauses and / or against any claim, action ordemandbyanyworkman/employeeoftheContractoror anysub-contractorunderanylaws, rulesor regulationshaving force oflaws,including but not limited to claims against the owner under the workmancompensation Act, 1923, the Employee's Provident Funds Act, 1952 and /orthethecontractlabour(AbolitionandRegulations)Act,1970.
2. PAYMENTSOFCLAIMSANDDAMAGES : If owner has to pay any money inrespect of such claims or demands aforesaid, the amount so paid and thecost incurred by the owner shall be charged to and paid by Contractorwithoutanydisputenotwithstandingthesamemayhavebeenpaidwit houttheconsentorauthorityoftheContractor.
3. Ineverycaseinwhichbyvirtueofanyprovisionapplicableintheworkman's Compensation Act, 1923 or any other Act, owner be obliged to pay compensation to workmen employed by Contractor the amount ofcompensation so paid, and without prejudice to the rights of owner underSection-(12) Sub-section-(2) of the said Act, owner shall be at liberty torecover such amount from any surplus due to on to become due to theContractor or from the security deposit. Owner will not be bound tocontestanyclaimmadeunderSection-(12)Sub-section-(2)ofthesaidact

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 caused 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.

**First Aid and Industrial Injuries:**

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

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.

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 physicians shall be furnished to owner.

**General Rules:**

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.

**Contractor's Barricades:**

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.

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

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

**Scaffolding:**

Suitable scaffolding shall be provided for workman for all work that cannot safely be done from ladders. When a ladder is used, an extra mazzdoor 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 than 1 in 4 (1 horizontal and 4 vertical).

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.

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.

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

Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladders 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 owing 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.

**Excavation:**

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

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 or 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.

**Demolition:**

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.

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

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

**Safety Equipment:**

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.

Workers employed on mixing asphaltic materials, cement and lime mortar shall be provided with protective footwear and protective gloves.

**Risky Place:**

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.

**Hoisting Equipment:**

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

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.

Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffolding.

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.

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 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.

**No Exemption:**

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.

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 indemnify 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**  
**R.M.C.**

**Dy. Ex. Engineer**  
**R.M.C.**

**ADDL. CITY ENGINEER**  
**R.M.C.**

**Signature of Contractor with Seal**



**PART-**  
**IISECTION-**  
**3**

# **TECHNICAL SPECIFICATIONS**

**PART-**  
**II SECTION –**  
**3**  
**TECHNICAL SPECIFICATIONS CONT**  
**ENT**

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B2	Labour specification
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<b>D</b>	<b>ADDITIONAL CONDITIONS</b>
<b>E</b>	<b>SCHEDULE OF DRAWING</b>

## **:: 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 Tender. The work includes supply of sewer pipes i.e. stoneware 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 as specified and shown in schedule "B". Other material like cement etc shall have to be supplied 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 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 slatted 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 trails, 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 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 this 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:

All the items occurring in the work and as found necessary during actual execution shall be carried out in the best workmanlike manner as per specification and the written order of the Engineer in charge.

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. 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 if given to the contractor himself.

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

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.

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.

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

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

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.

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:**

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.

##### **Soils:**

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

##### **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.

##### **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 tool set etc.

##### **Hard Rock:**

This shall include rock occurring 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, power, labour, etc. required for necessary tests 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 should be confirming to IS:1786. The approved make shall be TATA, SAIL, Vizag, Gallent, Electrotherm or other equivalent make as approved by engineer-in-charge.
- 10.** Cement shall be ordinary Portland cement 53 Grade conforming to

IS:269,IS:8112orIS:12269foralltheworksaspertheinstructionsofengineer-in-charge.TheapprovedmakeshallbeAmbuja,Ultratect,LOTUS, Hathi oras per ISconfirming. Minimum CementcontentfortheworkshouldbeasperattachedcircularNo.RMC/C/Vigi.(Tech)/231dt.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**



**B1 MATERIAL SPECIFICATION**

## 1. **Material:**

### **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 mortar

strength by 10 per cent 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 be found suitable for curing mortar of concrete.

### **Lime:**

Lime shall be hydraulic lime as per I S 712 - Latest Edition. Necessary tests shall be carried out as per IS 69329 (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 limestone.
- 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, if stored, shall be kept in a weatherproof 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.

**Cement:**

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

**White Cement:**

The white cement shall conform to IS 8042-ELatest edition.

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

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

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

**Fine Sand:**

The fineness modulus 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 Designation	by weight percentage passing sieve.

4.75mm	100	600Micron	40-85
2.36mm	100	300Micron	5-50
1.18mm	75-100	150Micron	0-10

**StoneDust:**

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 field test is given as under:

A sample of stone dust to be tested shall be placed without drying in 200mm measuring cylinder. The quantity of the sample shall be such that it fills the cylinder up to 100mm mark, the clean water shall be added up to 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 modulus of stone dust shall not be less than 1.80

**StoneGrit:**

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
12.50mm	100%	4.75mm	0-20%
10.00mm	85-100%	2.36mm	0-25%

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

The necessary tests for grit shall be carried out as per the requirements of IS 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.

**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 aggregates shall be as mentioned below:

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

### **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 grinding (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 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 is prepared. But in no case, mortar made earlier than 3 6 hours shall be permitted for use.

### **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 platforms 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 be used within 30 minutes.

**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 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 stone as approved. Aggregates 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 6mm, less than the minimum lateral clear distance between bars of 6 mm less than the cover whichever is smaller.

IS Sieve designation	Percentage passing for single sized aggregates of nominal size			IS Sieve designation	Percentage passing for single sized aggregates of nominal size		
	40mm	20mm	16mm		40mm	20mm	16mm
80mm	--	--	--	12.5 mm	--	--	--
63mm	100	--	--	10mm	0.5	--	0.30
40mm	85-100	100	--	4.75mm	--	0.20	0.5
20mm	0-20	85-100	100	2.35mm	--	0.50	--
16mm			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.

**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. Aggregates shall have no deleterious reaction with cement.

The necessary tests indicated in IS 383 Latest edition and IS 456 Latest editions shall have to be 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.

**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 or over burnt brick bats shall not be allowed.

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

**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 its flat sides. The bricks shall not break 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:  $\pm 1/8"$  (3 mm) width:  $\pm 1/16"$  (1.5 mm) Height:  $\pm 1/16"$  (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.

**Stone:**

The stone shall be of the specified variety such as granite / trap stone /quartzite 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, sandholes flaws, injurious veins, patches of loose or soft materials etc. and weathered portion and other structural defects or imperfection tending to affect 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 shall be 200kg/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 faces 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.

**Laterite Stone**

Laterite stone shall be obtained from the approved quarry. It shall be compacted, in texture, sound, durable and free from soft patches. 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 clay occurs should not be used. Special

corner stones shall be provided where so directed.

**Mild Steel Bars:**

Mild steel bars reinforcement for RCC work shall conform 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 10mm length and weight payable worked out at the rates specified below:

1	6mm	0.22Kg/Rmt	8	20mm	2.47Kg/Rmt
2	8mm	0.39Kg/Rmt	9	22mm	2.98Kg/Rmt



3	10mm	0.62Kg/Rmt	10	25mm	3.85Kg/Rmt
4	12mm	0.89Kg/Rmt	11	28mm	4.83Kg/Rmt
5	14mm	1.21Kg/Rmt	12	32mm	6.31Kg/Rmt
6	16mm	1.58Kg/Rmt	13	36mm	7.99Kg/Rmt
7	18mm	2.00Kg/Rmt	14	40mm	9.86Kg/Rmt

**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.

**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 IS 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 in 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 wires pass 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 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 in immersion in solvent solution, wire brushing or passing through a pressure box containing carborundum.

**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 IS 280 Latest edition.

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

**Structural Steel:**

All structural steel shall conform 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.

**Galvanized Iron Sheets:**

The galvanized iron sheets shall be plain or corrugated sheets of gauges 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 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. sheets 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 length and width and properly bent up to shape without damage to the sheets in the 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 flashings 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 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-39 Acrylic Sheets:**

Acrylic sheet shall be of thickness as specified in the item and of unspotted shape size as the case may be. 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-42. Resin bonded fiberglass:**

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

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

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

- (1) Bituminised hessian 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 surface 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, handleless door stoppers, casement window fasteners, casement stays and ventilator catch shall be made of the metal as specified 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 fastenings 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

**Butthings:**

Railway standard heavy type butthings 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 approved.

**Tower bolts (Barrel Type):**

Tower bolts as specified in the item shall be used and shall be 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 fixed 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 on the right hand side 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 300 mm 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 and 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 stain 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 a freshly opened full can and shall easily be redispersed with a paddle to a smooth homogeneous state. The paint shall show no curdling, livering, caking or colour separation and shall be free from lump and skins.
- (ii) The paint as received shall brush easily, possess good leveling properties and show no running or sagging tendencies.
- (iii) The paint shall not skin within 48 hours in a three quarters filled closed container.
- (iv) The paint shall dry to the smooth uniform finish free from roughness, grit, 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.

**Testing Method**

Fire Propagation Test	Class-0	B.S.476PART-6
Flamespread	Class1(0-25)	ASTM-E84
	Class-A	U.S.FederalSpec. SS.-S-118-b
	20	UnderwritersLaboratoriesInc.
	Class-1	BS.476Part-7
Thermalconductivity	0.045Kcal/mh <sup>0</sup> C	JISA1412
Lightreflectance	LR-1(Over80%)	ASTM.C523
NRC	0.55-0.70	ASTM.C423
CAC	36	ASTM.E413

- I. Size, thickness and otherspecialrequirement shall bespecifiedintheitemspecification.Thefabricationshallbedoneasdirected.

**SignatureofContractor**



**Item No. 1:**  
**Excavation of Foundation in Soft Murrum, Soil or Sand from 0.0 mtr. to 1.50 mtr depth including lifting and laying as instructed**

**General:**

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 lawn, clay, peat etc. fall under this category.

**Cleaning the site:**

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 obtained shall be property of the government and shall be conveyed and stacked as directed within RMC limit. The roots of the tree coming in the sides shall be cut and coated with a asphalt.

The rate of site 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 foundations 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.



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.

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. IOCGodown, Morbi Road
5. TP Preservation 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 National 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 foundations shall be made according to the section 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 rates shall be for a unit of one cubic Meter.

**Item No.2:**

- A) Supplying of hard murrum binding material.**
  - B) Spreading bindage or road crust filling the gaps in metal and leveling to camber and gradient and directed murrum.**
- A) Material for the purposes shall be approved quality. Any material which is found inferior shall be rejected and contractor shall remove such rejected material from the site at his own cost.

The material shall be got approved by the CITY ENGINEER prior to collection on the site. It shall be free from all rubbish, dust and any organic materials as well as clouds of black cotton soils.

For road work, complete stocking of materials as per requirements shall be carried out 200 m length or as per condition of site or as per instructions of site in charge before spreading. The stacks of materials

shall be got cross checked by Dy.Ex.Engineer as per rules before spreading.

Where any doubt exists as whether quantity of stacking of murrum corrected by contractor, no extra payments shall be claimed by contractor. If the quantity of murrum in any stack found less than standard measurement viz; 1.5cmt. The entire shall be paid on the basis of the quantity so found.

The payments shall be on cubic meter basis without deduction for voids. The contractor shall maintain all stacks in regular and proper size till whole material shall not measure and finally accepted by the department.

The rates include cost of collection, conveyance to the site with all lead and lift and filling the boxes including all labours, tools, equipment and other expenses. The rates quoted are inclusive of all such tools, duties, royalties, taxes etc.

- B) Spreading of material shall be started after the full supply in particular length is collected, measured and recorded. Permission of Engineer in-charge shall be obtained before spreading. It shall be seen that formation is dressed to required camber and grade. If the murrum is to be spread over the metaled surface then the spreading shall be uniform and as it has to act as binding surface. It shall be used for filling the interstices of metal and forming a smooth running surface as far as possible. Murrum bindages shall be spread evenly with a twisting motion of the baskets. No more murrum shall be used than specified as bindage. The contractor shall do good all unevenness, depression, projection etc. during consolidation work. Rate of these items includes all these operation except consolidation. **Also, the work is to be carried out with Mini Roll/Road Roller/ Hand Rollas may be required for the work as per the requirement and instructions of engineer in charge.** The payments shall be made on cubic meter basis.

The testing of material is to be carried out by the Agency at his own cost.

**Item No. 3 and 4:**

**RCC work 1:2:4 for coping using aggregate of size 10-20mm. centring, curing, finishing etc. complete (without reinforcement)**

**And**

**Providing and laying cement concrete in M-**

**20 or 1:1½:3 in nominal mix (1 cement:1½ coarse sand:3 graded stone aggregate 20mm nominal size) curing complete excluding reinforcement for reinforced work in (C) Slabs, landings shelves, balconies, lintels, chhajja, beams, girders and cantilever (E) Stair case**

**1.0 Materials:**

Water shall conform to M-1, cement shall conform to M-2, Sand shall conform to M-4, Grit shall conform to M-8. Graded stone aggregate 20

mm, nominal sizes shall conform to M-12.

## 2.0 General:

The concrete mix is not required to be designed by preliminary tests. The proportion of concrete mix shall be 1:1 $\frac{1}{2}$ :3 (1 Cement: 1 $\frac{1}{2}$  coarse sand: 3 graded stone aggregate) 20 mm nominal size) by volume.

Concrete work shall have exposed concrete surface or as specified in the item.

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 $\frac{1}{2}$ :3 and 1:1:2 nominal mix of ordinary concrete by volume respectively.

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 50kgs of cement to be taken as the sum of individual volume of fine and coarse aggregates, max.	Proportion of fine aggregate to coarse aggregate	Quantity of water per 50Kgs of cement maximum
M-100(1:3:6) M-150(1:2:4) M-200 (1:1 $\frac{1}{2}$ :3) M-250(1:1:2)	300 Litres 220 Litres 160 Litres 100 Litres	Generally 1.2 for fine aggregate to coarse aggregate by volume but subject to an upper limit of 1:1.1/2 and lower limit 1:3	34 Litres 32 Litres 30 Litres 27 Litres

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.

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.

The maximum size of coarse aggregates 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.

For heavily reinforced concrete members as in the case of ribs main

beams, the nominal maximum size of coarse aggregates should usually be restricted to 5 mm, less than the minimum distance between the main bars, or 5 mm less than the minimum cover to the rebar or whichever is smaller.

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 great as or greater than the minimum cover.

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: 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 cu. metre. Boxes of suitable size shall be used for measuring sand aggregate. the size of boxes (internal) shall be 35 x 25 cms, and 40 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.

### **Mixing:**

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.

When 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

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obtained. In hand mixing quantity of cements shall be increased by 10 percent above that specified.

Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed to by the engineer-in-charge the first batch of concrete from the mixture shall contain only two thirds of normal quantity of coarse aggregate. Mixing plants shall be thoroughly cleaned before changing from one type of cement to another.

**Consistency:**

The 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.

**Inspection:**

Contractor shall give the engineer-in-charge due notice before replacing 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.

Centering design and its erection shall be got approved from the engineer-in-charge. One carpenter with helper shall invariably be 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.

**Transporting and Laying:**

The 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, snow or ice immediately before replacing of concrete. No concrete shall be placed in any part of the structure until the approval of the engineer-in-charge has been obtained.

Concreting 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. Except 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.

Unless 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 13mm thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13mm 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 or 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.

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 conditions shall be kept at sites so that spare equipment is always available in the event of breakdowns. Concrete shall be judged 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.

#### **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, hessian 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.

#### **Sampling and testing of concrete:**

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
1-5cmt	1	16-30cmt	3

6-15cmt	2	31-50cmt	4
51andabove	4±oneadditionalforeachadditional50morpartthereof		

**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.

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<sup>2</sup> 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 are higher than the minimum specified.

### **Stripping:**

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 considerations 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°C) 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) Beams of fish (props left under) - 7 days
- c) Removal of props slabs:
  - i) Slab spanning up to 4.5m - 7 days
  - ii) Spanning over 4.5m - 14 days
- d) Removal of props for beams and arches
  - i) Spanning up to 6m - 14 days
  - ii) Spanning over 6m - 21 days

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.

Centerings 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 formwork, it shall be cleaned and made good to the satisfaction of the engineer-in-charge. After removal of work and shuttering, the City Engineer shall inspect the work and satisfy by random checks that concrete produced is of good quality.

Immediately after the removal of forms, all exposed bolts etc. passing through the cement concrete member and used for shuttering or any other purposes shall be cut inside the cement concrete member to a depth of at least 25 mm below the surface of the concrete and the resulting holes be filled by cement mortar. All fins caused 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 thorough 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 placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement. In case of cantilevered or doubly reinforced 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 by means of timber templates slots accurately cut in them, the templates shall be removed after concreting has been done below it. The bars may also suitably be tied by means of annealed steel wires to the shuttering to maintain position during concreting.

1.2. All bars, projecting from pillars, columns, beams, slab 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.

### **Mode of measurements & payment.**

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 for

- (a) Ends of dissimilar materials such as joints, beams, posts, girders, rafters, purline trusses, corbels and steps etc. upto 500 sq.cm. in section,
- (b) Opening upto 0.1 Sq.M.

The rate includes cost of all materials labour, tools and plant required for missing, 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 formwork.

4.3 The rate shall be for a unit of one cubic meter.

**Item No. 5:**  
**Brick Work**

**Materials:**

Water shall conform to M-1.

**Cement:**

Cement shall conform 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 shall not break 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  $\pm 1/8"$  (3mm) width:  $\pm 1/16"$  (1.5mm) Height:  $\pm 1/16"$  (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 course. Each brick shall first be properly bedded and set in place by gently tapping with handle of trowel or wooden mallet. Its 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 course 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 rule, 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 be done.

The face of brick shall be cleaned the very day on which the work is laid and all mortar droppings removed.

**Curing:**

Green work shall be protected from rains 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 plans or as directed shall be final. Battered tapered and curved position shall be measured net.

**Item No. 6:**

**20mm thick sand face cement plaster on walls and RCC structure up to height of 10m and above ground level consisting of 12mm thick backing coat of C. M. 1:3 (1 cement:3 sand) and 8mm thick finishing coat in C. M. 1:2 (1 cement:2 sand) etc. complete**

**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 scaffoldings shall be sound. These shall be properly examined before erection and use. Stage scaffoldings shall be provided for ceiling plaster which shall be independent of the walls.

**Preparation of background:**

The surfaces 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 formwork, the shall be roughed by wire brushing and all the resulting dust and loose particles 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 operations 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 15x15 cm shall be first applied horizontally and vertically at not more than 2 meters interval 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 then 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 junction etc. shall be carried out with proper templates to the size required.

Cement plasters 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 area so as 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 brickwork, 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 to 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.

Soffit of stair shall be measured as plastering on ceilings. E. lowigns soffit 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:

- a) No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq.mt. each and no additions shall be made for reverse, jambs, soffits, side etc. of these openings, for finish to plaster around ends of joints, beams, posts etc.
- b) 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.
  - i) When both faces of all walls are plastered with same plaster. Deductions shall be made for one face only.
  - ii)
    - 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 rates shall be for a unit of square meter.

**Item No. 7:**  
**Cement Plaster With Neeru + Cement Finish**

**Material:**

Water shall confirm to M-1.

Cement Mortar shall confirm to M-11

**Workmanship:**

12mm 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 others scaffoldings shall be sound.

These shall be properly examined before erection and use. Stagescaffolding 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 to wall 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. E. lowigns soffit 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, step 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:

- a) 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.
- b) Deductions for openings exceeding 0.5 sq.mt. but not exceeding 3.00 sq.mt. each shall be made as following and no additions shall be made for reverse, joints, soffits, sides, etc. of these openings.
  - i) When both faces of all walls are plastered with same plaster. Deductions shall be made for one face only.
  - ii)
    - ✓ 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. 8:**

**Apply 3 coats of putty of brands Asian paints, JK, Birla company after 12mm rough plaster including material and labour of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.**

In order to achieve a superior finished surface, putty paste fillers shall be used on, all surface 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.

The rate for this item will be paid on one square meter basis.

**Item No. 9:**

**Plastic Emulsion paint (two coats) (Asian Paint, ICI, Dulux, Nerolac, Berger, etc. of approved type (with prime coat):**

**Materials:**

The name of paint shall satisfy general requirements in specifications of oil paints. Enamel paint shall conform to I S Latest edition.

**Workmanship:**

The materials required for work of painting work shall be obtained directly from approved manufacturer or approved dealer and brought to the site in maker's drum, bags etc. with seal unbroken.

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 state 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 leftover paint shall be put back into tins. When not in use, the containers shall be kept properly closed.

If for any reasons, thinning is necessary, the brand of thinner recommended by the manufacturer shall be used.

The surface to be painted shall be thoroughly cleaned and 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 unfavourable weather and all the surfaces shall be thoroughly dry before painting work is started.



### **Application of paint:**

Brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consist of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately 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.

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 the engineer-in-charge before next coat is started.

Each coat except the last coat shall be lightly rubbed down with sand paper or fine pumices tone and cleared 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 moulding etc. shall be left on the work.

Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. Approved best quality brushes shall be used.

### **Mode of measurement and payment:**

The new steel and other metal surfaces shall be measured under this item. All the work shall be measured net in the decimal system as executed subject to the following limits unless otherwise stated hereinafter.

- a) Dimensions shall be measured to the nearest 0.01 meter.
- b) Areas shall be worked out to the nearest 0.01 meter.

No deduction shall be made for openings not exceeding 0.5 sq.m. each and no addition shall be made for painting to beddings, moulding, edges, jambs, soffits, sills etc of such opening.

In case of fabricated structural steel and iron work, priming coat of paint shall be included with fabrication. In case of trusses, if measured is sq.m compound girders, stanchions, lattices, girder and similar work, actual area shall be measured and no extra shall be paid for painting on bolt heads, nuts, washers etc. No addition shall be made to the weight calculated for the purpose of measurement of steel and iron works for paint applied on shop or at site.

The different surfaces shall be grouped into one general item, areas of uneven surfaces being converted into equivalent plain areas in accordance with the table given as per Annexure-II for payment.

The rate is including priming coat.

The rate shall be for a unit of one square meter.

**Item No.10:****Apex Color work on Outer side of Wall (Two coats) (with Base Coat) FINISHES****EXTENT AND INTENT**

The Contractor 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 specialist workers, approved by the Engineer-in-charge of RMC for this work.

**STORAGE**

Storage of materials to be used on the job shall be, only in a single place approved by the Engineer-in-charge of RMC for this work. Such storage places 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 Engineer-in-charge of RMC for this work, 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 these 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 Engineer-in-charge of RMC for this work. The Contractor shall as far as possible use pre-mixed manufacturer's shades and shall prepare a sample of the shade selected and submit same for approval by the Engineer-in-charge of RMC for this work. No work is to proceed until the Engineer-in-charge of RMC for this work 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 Engineer-in-charge of RMC for this work.

Painting/finishing work shall be taken in hand only after all other civil work is completed.

Buildings where repainting/finishing work is to commence 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 unobstructed 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 paris / 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 containers 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 machinery 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 Engineer-in-charge of RMC for this work 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 Engineer-in-charge of RMC for this work 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 sponger rollers or stippling brushes as called for.

The rates shall be paid for a unit of one square meter basis.

**Item No. 11:**

**Providing & laying Vitrified Tiles for flooring work in 1st Quality supply and fixing of vitrified tiles flooring work of size more than 0.60x0.60mtr (1st quality)**

**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 them as to place wooden planks across and equal on it.

The Color vitrified tiles shall be laid on cement mortar bedding of 10 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 bases shall be cleared and well wetted. The mortar shall then be spread in thickness not less than 10 mm at any place and average 12 mm 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 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 or trowel to a depth of 5 mm 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. 12:**

**Providing and laying glazed tiles of 6mm thick of approved quality (1<sup>st</sup> quality) of required size jointed with cement paste on 12mm thick cement plaster 1:3 (1-cement 3-Coarse sand) pointing white cement and jointed with white cement slurry**

**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 tiles shall be plus or minus 1.5 mm. The thickness of tiles shall be 6mm except as above the tiles shall conform 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 lump 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 centre line both ways. The Nahnitrap 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 in any way still the completion of the construction.

The rate for this item will be paid on one square meter basis.

### **Item No. 13:**

**Providing & Fixing Orissa Pan W.C. & European type of appropriate make incl. "P" or "S" traps required along with drain connection and all the necessary fixtures and half turn flush cock etc. of size 580mm x 440mm completed as directed.**

## **MATERIALS**

### **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 580x440mm with raised footrest.

## **WORKMANSHIP**

The pans shall be sunk into the floor and embedded in a cushion of average 15cm cement 1:5:10 (1 Cement: 5 Fine Sand: 10 Graded stone aggregate 40mm nominal size) or as specified. This concrete shall be left 15mm below the top level of the pan so as to allow for flooring and its bed concrete. The floor should be suitably stopped so that the wastewater is drained into the pan. The pans shall be provided with 100mm 'P' or 'S' traps as specified in with approximately 50mm seal. The joints in the pan and the trap shall be made leak-proof with cement mortar 1:1 (1 Cement: 1 Fine Sand).

The rates shall be paid for a unit of number basis.

### **Item No. 14:**

**White porcelain wash basin 560/410mm Indian make C.I. bracket with fitting chromium plated topes 25cm plastic waste pipe and 12mm pillar cock with comp.**

#### **1.0: Materials:**

- 1.1. The white glazed earthenware wash basin shall be 560mm x 410mm of 1<sup>st</sup> quality and make as approved by the Engineer-in-charge. The wash basin shall conform to M-59.

**Workmanship:**

The wash basin shall be fixed on the wall as and where directed. The wash basin shall be supported on a pair of R.S. or C.I. brackets fixed in C.M. 1:3. (1 cement : 3 sand). The bracket shall conform to I.S. :latest edition. The wall plaster on the rear shall be cut to rest the top edge of the wash basin. After fixing the basin, plaster shall be made good and surface finished to match with the existing one.:

The bracket shall be painted white with ready-mixed paint.

The C.I. brass trap and unions shall be connected to 32mm. dia. waste pipe which shall be suitably bent toward the wall and which shall discharge into an open drain leading to a gully trap or direct into the gully-trap on the ground floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where the surface drain or a floor trap is placed directly under the basin and the waste is discharged into vertically.

The height of the front edge of the wash basin from the floor level shall be 80 cms.

The necessary inlet, outlet connections and fittings such as pillar cocks; C.P. Grass waste trap waste pipe, stopcock, chain with rubber plug etc. shall be fixed. The payment of fittings shall be made separately under separate items.

**3.0: Mode of measurements & payment**

The rate includes cost of all labour, materials, tools and plant etc. required for satisfactory completion of this item as specified in workmanship.

The rate shall be for a unit of One number.

**Item No. 15:****FRP Door supply fitting and fixture complete**

Providing and fixing 28mm thick single shutter door with flush depressed panel design with core material PU foam done in situ & sandwich panel of 4mm thick plywood & moulded in wooden blocks for fixtures. FRP thickness to be 1.50 mm to 2.00 mm including providing and fixing FRP moulded section frame of section size 100mm x 50mm chamfered type with FRP thickness of 2.00mm and core of rigid polyurethane foam having density 32Kg/cmt to 36 Kg/cmt., compressive strength 3.5 Kg./sqcm to 4.5 Kg./sqcm. and fire retardant grade, PU foam shall be done in situ with Canadian Ponderosa wooden blocks for fixtures. In built holdfast arrangement to use fasteners for fixing with masonry or R.C.C. The whole section of frame and shutters shall be water proof, acid/alkali resistant & well coat colour. the frame and



shutters shall be fixed with all necessary stainless steel fixtures and fastenings etc. complete as per direction of engineer in charge.

#### **Materials:-**

Frame materials shall be of fire extinguishing grade FRP skin having section 100mm x 50mm chamfered type with thickness of 1.50mm to 2.00mm and core material shall be fire extinguishing grade rigid polyurethane foam having density 32Kg/cu.cm to 36Kg/cu.cm, flexural strength 1.8Kg/Sqcm to 2.00 Kg / Sqcm and compressive strength

Kg / Sqcm to 4.5 Kg / Sqcm. Whole frame shall be water proof, weather proof, termite proof and mild acid/alkali resistance. P.U foam shall be done in situ with plantation wooden pieces embedded inside for holding fixtures and stiffening. Frames shall be straight in line, level and having three joint-less pieces. Frames shall be fixed in masonry/R.C. with Mild Steel hold fast or with 115mm long screws as hold fast with sleeve in position and finished in colour cement. 28 mm thick shutter in depressed panel design shall be having 1.5 mm to 2.0 mm thickness fire extinguishing grade FRP skin, sandwich panel of 4mm thick plywood and embedded wooden pieces for stiffening as well as holding hinges and fixture, all molded into a one piece shutter. Core material shall be injected fire extinguishing grade rigid polyurethane foam done in situ having density 32Kg/Cu cm to 36Kg/Cu cm compressive strength 1.8Kg/Sqcm to 2.00Kg/Sqcm, flexural strength 3.5Kg/Sqcm to 4.5Kg/Sqcm. Whole shutters shall be water proof, weather proof, termite proof and mild acid/alkali resistance. 28mm thick depressed panel FRP shutter shall be joint-less. It shall be straight and smooth and of standard shape finished in gel coat. All necessary fixture and fastenings shall be fixed where wooden pieces are provided.

#### **Workmanship:**

Frames shall be fixed in masonry/R.C. member. Shutters shall be fixed in true line; level and proper manner having 2.0 to 3.0 ply i.e. air space for smooth and easy working. Pull handles, Door stopper, Door stopper, bearing hinges & S.S self tapping Philips cross head special screws conforming to anti corrosive high grade AISI 304 stainless steel of standard make or as equivalent approved by Engineer-in-charge conforming to anti corrosive high grade AISI 304 stainless steel only, & Tower bolt of the make Orbit or as equivalent approved by Engineer-in-charge conforming to standards of ORBIT & anti corrosive high grade AISI 304 stainless steel only.

All fixtures and fastenings of standard make shall conform to AISI 304 Grade Stainless Steel.

The following table presents main elements (forming the Chemical composition) of AISI 316 Grade Stainless Steel.

- It can withstand the corrosion caused by atmospheric/environmental or major chemical reactions.
- It can resist high temperatures without going under any deformity which makes it highly recommended for fire safety doors in any building.
- It shall have remarkable creep strength and Rupture strength.
- It shall be repelled the Bacteria & shall be made higher degree of hygiene.

- It shall be of natural finish, it shall not require regular cleaning or maintenance making it most suitable for public places.
- It shall tolerate forceful and intense use.
- Specially developed fixing stud and grub shall be used to ensure accurate fitting of elements and eliminate shaking of elements.

#### **Fixtures & Fastenings:**

Following fixtures and fastenings shall be used for single shutter. All fixtures and fastening of the make shall be of anti corrosive high grade AISI 304 stainless steel in Glossy & satin combination finish only. Fixtures and fastening of standard make shall be fixed by skill person only.

The rates shall include anti corrosive high grade AISI 304 stainless pull handle, hinges, door stopper in Glossy & satin combination finish of the standard make including fixing with S.S self tapping Philips cross head special screws and Stainless steel tower bolt of the make Orbit. The size and number of hinges shall be as per table given above  $\pm 1.50$  mm tolerance will be allowed in thickness of shutter and  $\pm 1.20$  to  $2.00$  mm for size of frame.

#### **Mode of measurements & payment:**

The rate for shutter includes cost of anti corrosive high grade AISI 304 stainless pull handle, Door stopper, hinges, S.S self tapping Philips cross head special screws in Glossy & satin combination finish of standard make, tower bolt of the make orbit. The dimensions of the door shall be measured clear size of the opening made for fixing of door with frame.

The rates shall be for a unit of  $1$  sq. metre.

#### **Item No. 16:**

#### **Aluminium section window work (with 3 track - one mosquito net) (indal) (with necessary all fittings)**

**Providing and fixing Structural Glazing with spiders using the 17 Micron anodized of approved colour aluminium section with transium, mullion of size 62.5 mm x 25 mm x 2 mm with using 6 mm thick reflective structural glass of approved make, colour, toughened and shade and fixed with silicone sealant and spacer tap and at corner sealed neoprene foam dust and Air sealed gasket mired in lading scaffolding, cleaning of glass etc. complete at all heights and lift with all necessary fitting and fixtures, anchor fasteners, necessary M.S. or Aluminium brackets, suitable design for openable window as per Architectural drawing and as directed by Engineer-in-charge. Grooves between the glasses to be filled with sealant of Dow Corning- structural sealant 995, weather sealant 789. The entire facade should be water proof. The mullions are to be connected to bracket by SS- 304 nut bolts. Measurements shall be given as per actual execution of the work**

#### **ALUMINIUM EXTRUSION**

Aluminium Extrusion used in Structural Glazing, Stick Glazing, all type of Windows, Doors. Aluminium Extrusions shall be 6060-T6 alloy conforming to BS- 1474-1987. The extrusions shall be Clean, Straight with sharply defined lined and

free from distortion and defects impairing appearance, strength and durability. The extrusion shall be suitable for wall thickness and profile for rigidity and strength in respect to tensile, shear, bending and bearing stresses, capable of providing local and lateral stability.

### **FINISH**

The extrusion shall be finished in 'electrolytic colour anodizing' of approved shade and colour for an anodic coating of minimum 20 microns (+/- 2 microns).

### **GLASS FOR STRUCTURAL GLAZING, WINDOWS & FIXED GLAZING**

The glass will be of approved make and will be as specified by the architect. The glass samples will be submitted for approval.

### **ANCHORAGE SYSTEM**

The structural glazing system, will be fixed to the main building structure using components of alloy steel or other materials appropriate and conforming to statutory requirements and code of practices. In general, Galvanized steel brackets shall be used as the anchoring system. The type and size of the bracket to be selected in accordance with engineering calculations to withstand 200 Kg/Sqm x 1.5 times for safety factor. Mullions shall be mounted to the brackets of desired thickness and size. All fastening and transoms shall be of stainless steel bolts and nuts with spring washers.

### **HARDWARE FITTINGS**

All screws, plugs, nuts or other fastening devices shall be of stainless steel that will not result in the corrosion with installation. 4 bar stays stainless steel arm shall be used in openable windows along with peg stays for openable window.

### **SILICONE SEALANT**

Sealant for weather seals shall be Dow Corning 789 or Equivalent. Sealant for Structural Glazing shall be Dow Corning 995 or Equivalent and shall be applied in accordance with manufacturer's specification.

### **WEATHER STRIPPING**

Weather Stripping shall be extruded Neoprene / EPDM or Equivalent and of the required size.

### **GLAZING TAPE**

Glazing Tape for Structural Glazing will be special two ways adhesive Black coloured Tape equivalent to Norton Tape.

### **PROTECTION**

The finished surface will be protected with a self-adhesive peel-off with two layers of white and black, tested to withstand at least 9 months exposure to local weather condition, without losing the original peel-off characteristic or causing stains or other damages.

#### **Mode of measurement & Payment:**

No payments shall be made for weight of screws, bolts, nuts etc. Only Finish area should be measured for payment. The rates shall be for unit of one square metre.

**ItemNo.17:****14.43.(A)Kotastone(Polished,Greencolour)flooringover 25mm(average)thickbaseofcementmortar1:6(1cement:6coarsesand,)laidoverandiointedwithgreycementslurryincludingrubbingandpolishingcomplete25mm.thick****Materials**

Water shall confirm to M-1. Lime mortar shall confirm to M-10, Cement mortar shall confirm to M-11, Polished kotastone shall confirm to M-49.

**Workmanship**

Each slab shall be cut to the required size and shape and fine chisel dressed at all the edges. The sides shall be true and 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.

Bedding for the Kota stone slabs shall be of cement mortar 1:6 (1 cement : 6 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 joints 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.

The floor shall be kept wet for a minimum period of 7 days so that bedding and joints set properly.

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 the second polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly used 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.

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.

#### **Mode of measurements & payment**

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 dado or wall plaster and no deduction shall be made nor extra paid for any opening in floor of area upto 0.1 sq.mt.

The rate for item shall be for a unit of one sq. meter

#### **Item No. 18:**

#### **Providing Steel work for RCC work supplying, bending, binding & hooking by binding wire with Thermo Mechanically Treated (TMT) bars conforming to IS 1786, Fe-500**

##### **1:0. Materials**

- 1.11. TMT bars of Fe-500 should be conforming to IS:1786.

#### **Workmanship**

The work shall consist of furnishing and placing reinforcement to the shape and dimensions shown as on the drawings or as directed. Steel shall be clean and free from rust and loose mill scale at the time of fixing in position and subsequent concreting.

Reinforcing steel shall conform accurate to the dimensions given in the bar bending schedules shown on 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 waste the material. Bars bent during transport or, handling 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.

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 1mm in size and by using stay blocks or metal chairs 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 for 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 from 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.

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:

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 nor bending moment is maximum.

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 transmit the full stresses of bars so the 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)

When permitted or specified on the drawing's joints of reinforcement bars shall butt-welded so as to transmit 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.

#### Mode of measurements & payment

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 for 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.

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. The rate shall be for a unit of One Kg.

#### **Item No. 19:**

#### **Supply and laying of machine crushed aggregate of 25-38mm**

Machine Crushed metal shall be of approved quarry and it should be approved by the In-charge Site Engineer prior to collection.

The machine crushed metal shall be hard, tough, sound, durable, black trap field metal of close texture, with the decay and weathering. Each piece of the stone shall be angular and roughly cubical in shape and round elongated or flaky material shall be rejected. No round or oblong pebbles or at guar chips larger or smaller than specified size shall be allowed.

All unsound, weathered or disinclined stone obtained from the upper surface layer of the quarry or other layer of boulders shall be rejected. The physical requirement for standard size metal shall conform to the test results indicated in Table No. 1. The metal shall be nearly uniform in size as possible and shall conform to following minimum requirements of passing through the rings.

The physical requirement for standard size metal shall conform to the test results indicated in the Table No. 1 below:

**Table No. 1**

<b>Type of Const.</b>	<b>Test Method</b>	<b>Requirement</b>
Base (a) Los Angeles abrasion Value Or	IS: 2386 Part IV	50% (Max.)

Aggregate Impact Value.	IS 2386 Part I or IS :5640	40%(Max.)
(b) Flakiness index & Elongation Index	IS:2386 Part I	30%(Combined.)
(c) Water Absorption	IS:2386 Part-3	2%(Max.)

**Table No.2**

Grading No.	Size Range	IS Sieve Designation	Per cent by weight passing
2	25mm to 38mm	90mm	100
		63mm	90-100
		53mm	25-75
		45mm	0-15
		22.4mm	0-5

Wherever and doubt exists as to whether the above requirements are satisfied in whole or part. The collection of M.C. metal shall be got screened by the contractor, it so ordered by the In-charge Site Engineer and for which no extra payments shall be claimed by the contractor.

Any collection which does not fully satisfy the above requirements is liable to be rejected altogether. Frequency of test shall be as per Ministry of Surface Transport Specifications.

Agency has to submit completed drawing of leveling after each layer of work as mentioned in Special Conditions of Contract.

Also, the work is to be carried out with Mini Roll / Road Roller / Hand Rollers may be required for the work as per the requirement and instructions of engineer in charge.

The measurements shall be taken on cubic meter basis.

**Item No.20:**

**Supply and fixing of 60 mm thick M-30 i.e. compressive strength of 300 Kg /sq.m. cement concrete rubber mold interlocking paving blocks (Grey Color) IS Mark to be supplied and fixed as instructed with Concreting 1:2:4 the end of blocks (with Cement joints) in bedding of black stone sand for 50mm thick leveling and fixing of interlocking blocks in line level on it with compacter machine and cleaning and filling the joints with sand (without cement vata) including cement concrete prop. 1:2:4 as per instruction in gap at end block and color as per instruction including curing complete**

**Paver Block Manufacturing facilities**

RAJKOT MUNICIPAL CORPORATION, at its discretion shall nominate its representative for inspection of the factory. Party shall co-ordinate and co-operate with representative of RAJKOT MUNICIPAL CORPORATION. The party shall inform the address, telephone numbers and other details of the workshop and the contact person to enable RAJKOT MUNICIPAL CORPORATION depute its representative. The party shall allow entry to RAJKOT MUNICIPAL CORPORATION representative during all working days and time.



The Paver Block shall be made in factory with following minimum facilities:

**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 / sqmtr 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.

**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 3000psi and then there shall be automatic cutoff of hydraulic circuit without any manual interference. In case, paver mould by manual force or by machine without auto cutoff shall be accepted. All pavers shall have uniformity in strength.

**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 measurements 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.

The concrete Mix Design should be followed for each batch of materials.

### **Curing:**

The factory should have well designed curing area to ensure adequate (minimum 14 days) curing of paver blocks.

### **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.

### **Raw Materials.**

#### **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) (Portland-pozzolana cement – fly ash based). The minimum cement content in concrete used for making paver blocks should be 380 kg/Cum.

#### **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 siliceous sand. Limestone 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.

#### **WATER**

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS: 456-2000.

#### **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.

### **PaversBlockCharacteristics**

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.

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 30 N/mm<sup>2</sup> (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 MUNICIPAL CORPORATION. Testing shall be done as per relevant clauses of IS-15658 (LATEST).

The concrete pavers should have perpendicularities after release from the mould and the same should be retained until the laying.

The surfaces should be of anti-skid and anti-glare type.

The paver should have uniform chamfers to facilitate easy drainage of surface run off.

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.

The pavers shall be manufactured in single layer or more to ensure smooth surface on top and to remove all voids.

The pavers shall be of cement Grey colour without any pigment or colored with pigment or with chemically treated top surface as specified.

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.

The compressive strength requirement of concrete paver block shall be minimum 30 MPa (N/sqmm) for 28 days (Testing as per IS-15658) after applying the correction factor as per IS-15658 (LATEST). (Please refer clause 3.1 also).

### **PaverBlockDimensions**

Thickness	60/80mm
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Shape	Regular(UniformshapewithnoHolloworCracks)
Chamfer	5mmto7mmalongtopedges
ThicknessofWearingLayer	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 betheminimumthicknessofthewearinglayer)
PlanAreaA <sub>sp</sub> (Ref.Cl.B-3.3 Annex B, IS-15658(LATEST))	Maximum0.03 m <sup>2</sup>
Colour	Natural cement Grey colour without use of any pigment OR colour as specified
DimensionalTolerance	TolerancesasperIS-15658(LATEST)

**Note: All other visual/physical & dimensional acceptance on parameters like aspect ratio, squareness etc to be as per IS-15658 (LATEST)**

### **Testing of Paver Blocks**

#### **1 FOR 60/80 MM PAVER TILES**

<b>TEST</b>	<b>SPECIFICATION Average Values</b>
28 day Compressive Strength	Minimum 30 MPa (N/Sqmm)
Abrasion Resistance	Maximum 2 mm [i.e. 10 units of 1000 mm <sup>3</sup> per 5000 mm <sup>2</sup> 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).**

### **Laying of Paver Blocks**

#### **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 MUNICIPAL CORPORATION within seven days of receipt of call-up. RAJKOT MUNICIPAL 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 MUNICIPAL 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 drainages 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.

### **BEDDINGS AND 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.

<b>SISSIEVE SIZE</b>	<b>%PASSING</b>
9.52mm	100
4.75mm	95-100
2.36mm	80-100
1.18mm	50-100
600microns	25-60
300microns	10-60
150microns	5-15
75microns	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 variations 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.

### **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 fill 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 spacersto achieve gaps nominally 2 to 3mm wide between adjacent paving joints. No joint shall be less than 2mm or 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.

### **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 recompactd 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.

### **JOINT FILLING AND FINAL COMPACTION**

As soon as practical after compaction and in any case prior to the termination of work on the 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:

<b>ISSIEVE SIZE</b>	<b>%PASSING</b>
2.36mm	100
1.8mm	90-100
600mm	60-90
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.

### **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.

### **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 Grad with concreting 1:2:4 and design shall be supplied by RMC. The bedding of black 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. 21:**

**Supply of Garden Black Soil:**

The black soil shall have to be supplied as per requirement and the soil shall have to be got approved from the engineer in charge thereby spreading and leveling shall also have to be carried out to the satisfaction of engineer in charge.

The rate will be paid for a unit of one cubic meter basis.

**Item No. 22:**

**Supply and Laying of Red Soil**

The red soil shall have to be supplied as per requirement and soil shall have to be got approved from the engineer in charge thereby laying, spreading and leveling shall also have to be carried out to the satisfaction of engineer in charge.

The rate will be paid for a unit of one cubic meter basis.

**Item No. 23:**

**Selection of grass supply as required cricket ground and instructed and selected by engineer-in-charge**

The grass has to be supplied as per requirement for cricket ground and shall have to be got approved from the engineer in charge thereby planting shall also have to be carried out to the satisfaction of engineer in charge.

The rate will be paid for a unit of square meter basis.

**Item No. 24:**

**Plantation of lawn, tree, flower bed etc in field area  
Planting of lawn of approved quality at 15 cms diagonally, with fine dressing and maintenance of the lawn till virtual completion of soft landscape work removal of all thatching throughout the area along with appropriate use of anti weed when required grassing lawn including watering and fertilization.**

Planting of lawn of approved quality at 15 cms diagonally, with fine dressing and maintenance of the lawn till virtual completion of soft landscape work



removal of all thatching throughout the area along with appropriate use of anti-weed where required grassing lawn. Including watering and fertilization.

- The Natural grass (Lawn) are used standard and approved quality.
- Before the Planting of lawn quality contractor should be approved by Architect or engineer in charge.
- After the planting of lawn on regularly cleaning, watering, cutting through cutting machine and time to time remove to use weeds for date of completion to next two year.
- If for any reason some part of landscaping gets damage or dry agency have to re plant it at his cost in maintenance period.

#### **Mode of measurements & payment**

The rate shall include the cost of all materials and labour involved in all the operations described above. The Planting of lawn of approved quality shall be measured in Sq.mt.

#### **Item No. 25:**

#### **Iron Work as per drawing and Instructions all complete:**

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. 26:**

#### **Hockey Practice Net 2.4mm thick braided thread 1.75 Inches Block with all GST, transportation Etc. Complete**

Machine made Net should be provided to ensure uniform square meshes, providing better strength when faced with High Shock

HEAVY-DUTY WEATHER RESISTANT MATERIAL:

Nets to be specially treated to provide resistance to UV degradation which ensure better durability to be used for outdoor

INTERNATIONAL STANDARDS:

Hockey Net to Meet International Standards to practice

professionally. The rate will be paid for a unit of square meter basis.

**Item No. 27:**  
**Supply and fixing 13mm to 15mm Synthetic cricket pitch turf**

Providing and Laying Synthetic Grass multiple Sports of approved make. Grass staple size - 13/15mm, Roll width- 410 cm ± 2cm. Machine Gauge - 3/16" , Stitch Rate - 23/10 cm, Pile weight - 1150 gms/m<sup>2</sup> Number of Tufts - 300/m<sup>2</sup> Total Pile height - 15mm. Woven Polypropylene backing with fiber locked fleece. Latex Compound. All the edges to be seamed with PU Adhesive and polyester liner.

- 1) The synthetic turf has to comply to the following conditions:  
 Synthetic Turf should be FIH approved with minimum **National Level Turf** certification. It should conform to FIH playing specifications in National level class-2 certification. After the installation, the bidder should be able to provide minimum **FIH certification for the National level Competition**. All costs towards testing of installed turf by FIH approved independent laboratories shall be borne by the agency.
- 2) The shock pad has to comply to the following conditions:  
 Installation of shock pad has to be done as per FIH certification of the turf. Engineer-in-charge / Project Management Consultant (PMC) will approve shock pad specifications based on FIH certification before commencing work. The Contractor must submit Approved Certification of that shock pad has been installed as per FIH recommendation and manufacturer guidelines before laying of turf above the shock pad.
- 3) The rate will be paid for a unit of one square meter basis. No extra payment made for any subsidiary work made by agency for this process required in laying of artificial turf.

**Item No. 28:**  
**Fixing of CC Precast Road Divider stone 0.38x 0.30 x 0.20 cm including required material and labour (without colour)**

If Rajkot Municipal Corporation will provide cement concrete blocks prepared at Departmental Production Unit of Rajkot Municipal Corporation as per specified rate then Above CC Block is to be collected by the agency at their cost and transport it to the required site. No transportation will be paid. If Divider Block is not available in RMC Production Unit then the contractor shall have to purchase the same from the market. Required excavation work shall be carried out by the agency on the paver road or conventional asphalt road as per depth and width as directed by Site Engineer. No extra payment will be made. The excavated stuff shall be disposed off as directed by the site in charge. Lime mortar of 1 part lime and 4 part of sand shall be well mixed and laid in minimum 50 mm thickness and C C precast rubber mould blocks shall be laid as per proper alignment keeping in mind the projection of tiles laying bed in the inner side of the block. Cement mortar of 1:6 is required to be used for 18 mm vatta and aesthetic groove shall be made as directed between the two blocks with proper vatta along with cement paste with required tamping to complete as directed by Site Engineer. Minimum 75 mm x 75 mm triangular shaped lodhiya shall be casted with 1:2:4 cement concrete on both outer side of the block. The portion between the two blocks

below the tile flooring level shall be filled with quality hard murrum and shall be watered or achieving proper compaction as directed and shall be tampered properly.

If Cement concrete blocks shall be purchased from Corporation Departmental Production Unit by deduction from bill amount. If the material is supplied from RMC Store, Rajkot Municipal Corporation will be deduct the amount for such supply as per the current S.O.R. rate of Rajkot Municipal Corporation. Excavated stuff shall be removed and spread within 90m lead as directed and no extra cost will be given.

The required stone shall either be supplied by Store or if required, as and when it is to be purchased from market shall be got approved from RMC. The stone shall be of good quality if it is purchased from market and of sharp edge and of sufficient crushing strength as per I.S. The testing shall be carried out at the cost of the bidder

Mode of measurements shall be as per unit of number.

**Item No. 29:**

**Painting of Traffic Strip Footpath / Circle & divider blocks size 0.38x0.30x0.30 in two coats using enamel paint in different colors**

In this work the color work to road divider blocks except flooring including top the portion outside the road (from ground) is to be carried out with the oil paint of approved quality. The shade of various colors shall be used as approved by the engineer-in-charge. The work is to be carried out as per the instructions of engineer-in-charge.

For this color work, first of all primer is to be applied to old road divider blocks thereafter one coat is to be applied for whole work and shall have to be got checked from the engineer-in-charge and thereafter only the second coat is to be applied. The liquid between the two colors shall be done with due care and in line level.

The rate for this work shall be for running meter basis.

**Item No. 30 and 31:**

**Providing laying and jointing in true line and level 65 mm dia. U.P.V.C. Pipe (SCH- 80) for cold water including fittings of make PRINCE**

**/SUPREME/ASTRAL/FINOLEX as approved by Engineer In Charge. Pipes shall be fixed on the wall with the help of clamp at every two metre C/Cor shall be cancelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesives solvent, including cost of all materials**

**1. AIM AND FIELD OF APPLICATION**

- This specification has the aim to regulate the modalities of delivery and testing of UPV C pipes for conduction of water and food-fluids under

pressure, conforming to Dlgs 06/04/2004 n. 174 " regulation . concerning materials and objects which can be used within fixed plants of purification, treatment, conduction, and distribution of water used for human consumption".

## 2. STANDARDS OF REFERENCE

- UNI EN 1452 pipes systems of plastic material for conduction – unplasticated Polyvinyl- chloride – UPVC.

## 3. REQUIREMENT PRESCRIBED

- RAW MATERIAL The blend has mainly to be made of PVC (polyvinyl-chloride) with the sole addition of not toxic fluidification material and stabilizers, inert charges and other additives in quantities necessary to extrusion and to give a guarantee of stability of the characteristics of the polymer both during the working process and the life of the product.
- The blend used for the production of pipes, either in granules or powder, must not be used for any other utilization or working process than the required for the production of pipes.

### **The use of the following materials is not admitted:**

- plastifiers and/or mineral charges which may alter the mechanical and hygienical characteristics of the pipe.
- PVC from regeneration of already used polymers, even if selected.
- The use of material having been extruded once, obtained from grinding of pipes and fittings, which had already been extruded, even if they have the characteristics which conform to this specification.
- The characteristics from PVC powder have to be conform to the requirements of UNI EN 1452-1 and satisfy the data indicated in the following table:

Characteristics	Requirements
K Value	65 ÷ 70
apparent specific weight	0,5 ÷ 0,6
Particle size measurement	> 250mm 5% max. < 63mm
Residual VCM (Vinyl chloride-)	< 1ppm (1mg/kg max.)
Volatile substances	≤ 0,3%

## CARACTERISTICS OF FU-PVC BLEND

- The characteristics of the blend in shape of a pipe, must correspond to the requirements of UNI EN 1452-1 and satisfy the following table

Characteristics	Requirements
M.R.S. (according to ISO/TR 9080)	≥ 25MPa
specific weight	1,35 ÷ 1,46g/cm <sup>3</sup>
unitary yield point	≥ 48MPa
yield	≥ 48MPa
coefficient of elasticity	≥ 48MPa
coefficient of linear thermal expansion	< 10%
thermal conductivity	> 3.000MPa
	0,06 ÷ 0,08mm/m°C
	0,13kcal/mh°C

## PIPES

- The pipes have to be produced with raw material (PVC blend) corresponding to the requirements as indicated in the previous table and as follows:

<b>Colour</b>	<b>Grey</b> considering that pipes may be exposed to sun-rays, a minimum fading of the colour on one part of the pipe must not compromise the quality of the pipe to be used and therefore may not be a reason of rejection of the same, on delivery. RAL7011	<b>RAL7011</b>
<b>Aspect</b>	the inside and outside surfaces of the pipes must be smooth, clean and without cavities, impurities and porosities or any other irregularity on the surfaces which might hinder their conformity to the norms of reference and these specifications. UNI EN1452	<b>UNI EN1452</b>

## MECHANICAL AND PHYSICAL CHARACTERISTICS

- The characteristics of the pipes must conform to the requirements of UNI EN1452-2 and satisfy the requirements of the following table:

Characteristics	Requirement		Methods
shock resistance	T=0°C-TIR < 10% conform to schedule 6 of UNI EN1452-2		UNI EN 1452-2744
Resistance to interior pressure	No yield during the test 20°C/1h/σ=42MPa 20 °C / 100h / σ= 35 MPa 60°C/1000h/σ=12.5MPa		UNI EN 921
Temperature of softening Vicat (VST)	≥ 80 °C	Conform to UNI EN 727	UNI EN 727
Longitudinal shrinkage	≤ 5% the pipe must not show delimitation, blister or breakage	Testing Temperature Time of immersion For: e ≤ 8 mm > 8 mm	150°C 15min 30min
		Or	
		Testing Temperature Time of immersion e ≤ 8 mm e > 8 mm	150°C 30min 60min UNI EN 743 Method B: In air

Resistance to dichloromethane At a specified temperature	No attack in any part of the surface of the testpiece	Testing Temperature Time of immersion	150°C 30min	UNI EN 580
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## CONNECTIONS SOCKET/GASKETS

- the connections are made by means of sockets with elastomeric gasket. Gaskets have not to be toxic at all according to the present norms for this subject (sanitary discipline) and conforming to norm UNI EN 681/1.
- The system of connection has to correspond to the requirements of UNI EN 1452-5 for every single class of pressure (PN) and has to be tested according to:
  - a) EN ISO 13844 elastomeric gaskets for socket connections to be used with UPVC pipes – testing method for tightness of negative pressures;
  - b) EN ISO 13845 elastomeric gaskets for socket connections to be used with UPVC pipes – testing method for tightness of internal pressure with angular deflection of the connection.

## MINIMUM MARKING

the minimum marking on each meter of pipe must be indelible and show at least the following data:

- name of the producer and/or trademark of the product
- number of the norm of the system (UNI EN 1452)
- quality mark of the product - raw material (U-PVC)
- outside diameter of the pipes x wall thickness
- nominal pressure (PN) and SDR and/or series (s...)
- day, month, year and shift of production
- number of the extrusion line
- date of production

## GEOMETRICAL CHARACTERISTICS-DIMENSION OF PIPES

- Diameters, thickness and tolerances: pipes have to be formed (SDR) as foreseen by the National Introduction of UNI EN 1452 and have dimensions conforming to schedules 1,2,3 of Chapter 6 of UNI EN 1452-2 "geometrical characteristics".

Particularly in this discipline there is shown the prospectus including minimum wall thicknesses indicated in mm

Nominal outside diameter (MM)	Nominal Wall thicknesses (minimum) (mm)			
	PN6bar	PN10bar	PN16bar	PN20bar
20			1.5	1.9
25			1.9	2.3
32			1.6	2.4
40	1.5	1.9	3.0	3.7
50	1.6	2.4	3.7	4.6
63	2.0	3.0	4.7	5.8
75	2.3	3.6	5.6	6.8
90	2.8	4.3	6.7	8.2
110	2.7	4.2	6.6	8.1

125	3.1	4.8	7.4	9.2
140	3.5	5.4	8.3	10.3
160	4.0	6.2	9.5	11.8
180	4.4	6.9	10.7	13.3
200	4.9	7.7	11.9	14.7
225	5.5	8.6	13.4	16.6
<b>Nominaloutsidediameter</b>	<b>Nominalwallthickness(minimum)(mm)</b>			
(MM)	PN6bar	PN10bar	PN16bar	PN20bar
250	6.2	9.6	14.8	18.4
280	6.9	10.7	16.6	20.6
315	7.7	12.1	18.7	23.2
355	8.7	13.6	21.1	26.1
400	9.8	15.3	23.7	29.4
450	1.0	17.2	26.7	33.1
500	12.3	19.1	29.7	36.8
630	15.4	24.1		
710	17.4	27.2		
800	19.6	30.6		
900	22.0			
1000	24.5			

### Lengths

- pipes have to be delivered for all outside- diameters asked for in lengths of 6 meters (socket included).

### Ends of pipes

- the pipe has to have plain ends, sharply cut and must be perpendicular to the axis of the same pipe, having an outside chamfer of about 15°.

## CONTROLS AND RESPONSABILITY

- The contractor reserves the right to himself and to the person he is going to uncharged to assist the tests and controls carried out to check if the requirements prescribed by the norms of production and by these specifications are fulfilled.
- The supplier, therefore, will do his best to favor the free access of the persons uncharged by the contractor to the production plants of the pipes in a moment whatever during the different phases of production and to the laboratories during the phases of control and testing, communicating within a reasonable period of time the beginning date of production of the pipes ordered. He will further give to the persons in charge, full liberty of actions to make the controls necessary, inline with the requirements of production.
- The contractor reserves himself the right to check by means of taking samples of pipes and/or of the raw material, the correspondence of these to the present specifications and to the supplier's declarations.
- It is understood that the presence of the persons uncharged, during the tests, will not be a substitute of the controls to be carried out by the seller, who is the only one responsible for the quality of the pipes he produces.
- The seller will bear any costs deriving from the delivery of pipes not conforming to the requirements of these specifications.

## **DOCUMENTS AND CERTIFICATIONS OF QUALITY**

- the supplier has to enclose to his offer:
- the certification of conformity of the Internal Quality System conforming to UNI EN ISO 9000, issued by an independent Institute or Company in conformity with UNI CEI EN 45012;
- a signed declaration regarding the use of virgin raw material (blend), which does not contain already worked material or substances which can damage the human body;
- a certificate of conformity of the product to norm UNI EN 1452 for pipes, issued by an independent Institute, Body or Company, in conformity with UNI CEI EN 45011.

## **AFTER SALE ASSISTANCE**

- If agreed upon, when the order had been made, the supplier has to guarantee as follows:
  - assistance by means of qualified technicians at the begin of work within the building yard in order to check the correct way of installation (recommendations according to UNI EN 1452-6 and ENV 1046).
  - Assistance of competent personnel regarding the procedures of testing the laying within the building yard (in case of water conducts, forseen by the law according to the Ministerial Decree DM 12.12.85) of buried pipe-lines for fluids under pressure (execution according to method UNI EN 805, hydraulic test of conducts with a viscoelastic behavior).

## **HANDLING AND TRANSPORT OF MATERIALS**

- For the handling and transport of the pipes there have to be adopted all those procedures which are done to ensure that the same reach at destination completely integral. A possible deterioration of the pipes, ascertained on delivery of the same, will turn out into a claim of defect material. The pieces claimed will remain at the disposal of the supplier. Possible repairing or controls will be at the supplier's charge. As for loading, transport, unloading and storing of the pipes and special pieces, reference will be made to the prescription of the Ministerial Decree (D. M.) 12.12.1985 (and successive modifications and integration).

## **TRANSPORT OF PIPES**

- When transporting pipes, the loading surface must not be rough. It is necessary to support pipes for their whole length, thus avoiding the possibility that pipes get damaged due to vibration. In order to fix the load, straps of hemp, nylon or similar material can be used, taking care that the pipes will not get damaged.

## **LOADING; UNLOADING AND HANDLING**

- if loading and unloading of a means of transport or, anyway the handling of the material is done by means of a crane or the arm of an excavator, pipes have to be lifted in the center by an equalizing rocker arm of at least 3 meters. If these works are done by hand, it has to be avoided to slide pipes onto the side boards of the means of transport, anyway, on hard and sharp objects. The person in charge of the building site has to check all working processes of unloading in order to be sure of their regularity.



Each damaged product will be identified by writing "not to be used" and will be isolated in an extra area. The person in charge has to communicate as soon as possible, the existence of a damaged product to the Contractor's Director of Work, who then will take the actions necessary, according to his unobjectionable opinion. If a crane is used, there has to be an efficient system of communication between the worker inside the crane and the worker beside the means of transport.

## STORING OF PIPES

- the best solution for the storage of pipes would be to use wooden crates or crates of other materials, to be able to resist to the weight of the pallet put on top. The storage has to be carried out with great care and the pallets have to be aligned. The supporting surface of the pallets stored has to be levelled, not to be rough and must not have stones with sharp edges. Every possible idoneous solution has to be adopted in order to avoid any interference with the local traffic, both vehicles and pedestrians, and with any other already existing structure. The pipes have to be stored in a way to avoid possible accidents due to an unforeseen movement of the same.

## CONSERVATION OF THE MATERIALS

- It is absolutely necessary to adopt measures, that in case of long term storage, pipes of UPVC and plastic fittings can be put inside, away from sun-rays, in order to avoid the risk of degradation of the polymers and the decay of their chemical, physical, and mechanical properties. Fittings may be packed in indifferent ways according to their shape, dimensions and type of transport. If they are delivered without packaging, it has to be taken care not to pile them up without method, thus avoiding a collision between the single pieces or between the fittings and other heavier materials. In any case they cannot be put near heating devices or exposed to direct sun-rays until they are used. Similar indications have to be followed for the conservation of lubricants.

## MODALITY AND PROCEDURES OF LAYING IN SITE

- Typologies of trenches: The type of trench required by the project based on the evaluation of loads, the type of soil and the organization of the building yard, has to be scrupulously carried out in the next phase of execution. During the phase of execution it is therefore important to have a scrupulous correspondence between the project and its effective realization. In the table below there are some main typologies of trenches showing the relationship between the diameter of the pipes ( $D$  indicated in meters), the width of the trench at the level of the upper part of pipe ( $B$  in meters) and the height of filling on the upper part of the pipes ( $H$  in meters).

Type of Trench	B (width of the trench)	H (height of filling)
Small Trench	$\leq 3D$	$< H/2$
Large Trench	$3 < D$	$< 10 < H/2$
Embankment	$\geq 10D$	$\geq H/2$

### Small Trench

- this is the best way to lay a U-PVC pipes. The pipe does not have to bear all the load from above, as it transmits part of it to the surrounding soil depending on the deformation due to the deflection, the product is submitted to.

### **Large Trench**

- the load the pipe has to bear will be more than the one it has to support in a small trench. For this reason this has to be considered during the planning. This hypothesis has to be born in mind in order to obtain a certain security when making the calculations of the dimensions.

### **Embankment (positive position)**

- the upper part of the pipe is put on a natural level of the soil. If there is much load passing through, this typology has not to be adopted due to sinking of the soil in absence of excavations on the sides.

### **Terra pieno (negative position)**

- The pipe is put at a lower level than the natural one of the soil. Due to friction, even if a very light one, between the filling material put on the embankment and the natural sides of the trench, the pipes can support slightly more load than those in the positive position, but in any case less than those laid in a small and large trench. Therefore, even this typology is not advisable.

### **Depth of the trench**

- The depth of the pipes  $H$  (in meters) understood as a distance between the soil and the upper part of the pipes must satisfy the most protective of the following requirements, where  $D$  is the outside diameter expressed in meters.
  - $H \geq 1,0$
  - $H \geq 1,5D$

### **Width of the trench**

- This is determined by the laying depth and by the diameter of the pipe, as it has to allow the settlement of the bottom, the connection of the pipes and the movement of the workers. The minimum width of the soil  $B$  (in meters) is normally:
  - $B = D + 0,5$  with  $D \leq 0,4$  m
  - $B = 2D$  with  $D \geq 0,5$  m.
- On the other side, the inferior limit values have not to be exceeded very much as the efficiency of the trench is higher when the width is smaller.

### **Bottom of the trench**

- The trenches have to be made without bumps or unevenness in order to establish a continuous support for the pipes. It is not advisable to use a bottom with a concrete bed or similar as this will make the structure rigid.
- When the trenches are open on heterogeneous soil, situated on hills or in the mountains, it is necessary to anchor in order to avoid possible sliding of the soil.
- If there might be an instability of the soil due to water within the trench, it is necessary to re-inforce the soil bottom by means of draining pipes under the canalization.
- Around these pipes has to be put a compact strata of gravel or other material suitable to this purpose.

- In other words, it is necessary to make sure that there won't be any possibility that the filling material could move due to ground water.

### Laying Bed

- There has to be a stable laying bed on an even level, for canalization of U-PVC pipes. It has to be free from pebbles, heap of stones and possible other materials. The laying bed must not be built before having a complete stabilization of the trench bottom. The material used in normal laying conditions is sand mixed with gravel of a maximum diameter of 20 mm. If the soil has slopes, it is advisable to avoid sand, giving preference to gravel or crushed stones without edges, cut to pieces of maximum 10/15 mm. The material has then to be accurately compacted and has to achieve a thickness of minimum  $(10 + 1/10 D)$  cm.

### Norms of compacting and quality control

- As U-PVC pipes are flexible, the uniformity of the surrounding soil is basically for a correct construction of a carrying structure, because the soil, deformed by the pipes, reacts in a way to give a help in supporting the load. In order to assure stability and integrity of the pipes laid, within the time, it is pointed out that the contractor has to take a great care regarding the laying of the pipe bed, the support and the first covering of U-PVC and has to apply scrupulously the present norms.
- The degree of compacting of the material, which forms the supports, has a determining influence on the value of diametric deformations ( $x/D$ ) of the pipes. This value, which must not exceed the limits permitted, can be deduced by the formula of Spangler,

$$X = 0,125 \cdot Q$$

$$A \cdot (s/D)^3 + 0,0915 \cdot E1$$

with:

Q = total external load on the pipe [kg/m];

E = modulus of elasticity of the pipe [kg/m<sup>2</sup>]; s

= thickness of the pipe [m];

D = diameter of the pipe [m];

E1 = modulus of elasticity of the soil [kg/m<sup>2</sup>].

Particularly E1 depends on the factor of compacting  $a'$  according to the relation:

$$E1 = 9,104 \cdot (H+4) \cdot a'$$

where H [m] is the height of filling measured from the upper side of the pipe.

Furthermore  $a'$  is connected to the Proctor index as indicated in the following table:

Proctor Test	$a'$
95%	1,0
90%	1,5
85%	1,5 <sup>2</sup>
80%	1,5 <sup>3</sup>
75%	1,5 <sup>4</sup>

- The Proctor index defines normally the degree of compacting of the soil. For U-PVC pipes a Proctor index of at least 90% has to be considered. The achievement of the value required for the Proctor index has to be verified by means of appropriate tests and respective certifications, the number of which is fixed during the planning.
- The above-mentioned tests, defined as tests of compaction and determination of the characteristics of density of materials, must be carried out with the standard method AASHTO with 4 points of the curve density/content of water. In order to obtain the density required method of compacting are used (by hand with flat presses or with light mechanical apparatus).

#### Laying of the pipe

- before laying the pipes, they have to be checked one by one in order to discover possible defects; the end part and the socket of the pipes have to be integral. The pipes and fittings must be put on the laying bed in a way to have a continuous contact with the bed.
- The niches, excavated before, for the accommodation of the sockets (even if the dimension of the socket is minimum, it is normal to find a niche in correspondence of its support), if necessary, have to be accurately filled in order to avoid possible empty spaces under the sockets.

#### Procedure of filling

- The filling of a trench and generally of the excavation, is fundamental for the laying. As we are dealing with UPVC pipes, the uniformity of the soil is absolutely necessary in order to have a perfect construction of the carrying structure, as the soil reacts in a way, giving a contribution to support the given load. The material already used for the construction of the bed is put around the pipe and solidated by hand in order to form successive strata of 20 cm up to half height of the pipe. It has to be taken care that there won't remain any empty spaces under the pipes and that the strata L1 of the filling material between the pipe and the wall will be continuous and compact.
- The second strata of filling L2, reaches the upper part of the pipe. Its compactness has to be carried out with maximum care. The third strata L3 reaches 15 cm over the upper part of the pipe. Compactness has to be only at the sides of the pipes, never vertically on the same.
- The solidation of filling around the pipe must be uniform and reach 90% of the optimal value determined by the modified Proctor test. The support with turf, muddy, clay, or frozen soil is not allowed as this kind of soil cannot be solidated as it contains too much water.
- Further filling is made (strata L4 and L5) by material obtained from excavation. This material is cleaned from elements having a bigger diameter than 10 cm and from vegetal and animal fragments. The filling has to be made for the following strata up to 20 cm. It has to be compacted and eventually watered for a thickness of 1 m (measured from the upper part of the pipe), so that the density of the soil, once solidated, reaches 90% of the optimal value determined by the modified Proctor test. The bigger material (stones of a diameter > 2 cm) must not exceed the limit of 30%. At last there has to be a free space for the last strata of vegetal soil.

#### Special laying conditions

- If there is a ground water table, it has to be ascertained that this table does not cause any movement of the filling material surrounding the pipe. The surrounding soil has therefore to be solidated by means of draining, operating under the level of excavation, and thus avoiding every possible instability of the laying soil and brickworks.
- If during the work, for limited distances, there will appear some harder laying conditions than those foreseen by the project (enlargements of walls, landslides etc) works of protection have to be carried out in order to come back to laying conditions as described. There must be extra-walls or heaps of stones or concrete in order to reduce the length of the section of excavation or there must be adopted other solutions authorized by the Direction of Work.
- In case, for technical reasons the height H of recovering is in some points lower than the minimum prescribed, it is necessary to absorb vertical loads by using appropriate protection devices (rigid diaphragms of protection and distribution of the loads, to be put above the last compact strata of material), following the input of the Direction of Work.
- In case of crossing railways, it is possible to:
  - Forsee a steel covered protective pipe (casing)
  - Lay pipe in a tunnel of reinforced concrete

### **ESECUTIONS OF CONNECTIONS**

- Connections are made, respecting the indications given in the following, both for pipes and special pieces. An accurate cleaning of the parts to be joint is for seen making sure that they are integral. The gasket has to be inserted (if not already inserted during production) in its seat, situated in the internal side of the socket. Successive steps are:
  - Lubrification of the external surface of the end of the pipe (plain ended side of the pipe) and the internal surface of the socket, using an appropriate lubricant (grease or silicone-oil, Vaseline, soapy water, etc.) Avoid the use of mineral oils or greases which may damage the gasket.
  - Insert the head of the pipe until the end of the socket and do not force further. The perfect execution of this working process depends only on a precise alignment of the pipes and on an accurate lubrication.

#### **Item No. 32 to 37:**

**Providing and fixing uPVC fittings viz. coupler bend, elba, tee, etc. of Schedule-40 of any approved brand and quality -200 mm / 100 mm / 63 mm / 40 mm 25 mm / 15 mm**

The contractor shall have to supply UPVC fittings viz. Bends, tees, coupler, etc. of required dia size as per the requirement and of approved quality by the engineer in charge. Subsequently the fixing of the same shall have to be carried out with all required material etc. and complete the whole work as per the requirement and to the satisfaction of the engineer in charge.

The rates shall be for a unit of one number basis.

#### **Item No. 38:**

**Fixing of Gunmetal fullway wheel valve etc. 25mm dia:**

The ISI Marked Gunmetal fullway wheel valve of 25mm dia shall have to be fitted as per instructions of engineer-in-charge.

The rate for this work will be paid per number basis.

**Item No. 39 to 44:****Providing and fixing GI fittings if ISI:1239 viz. coupler bend, reducers, elba, tee, etc. of approved brand and quality**

=

The contractor shall have to supply GI fittings viz. Bends, tees, coupler, reducer, etc. of required dia size as per the requirement and of approved quality by the engineer in charge. Subsequently the fixing of the same shall have to be carried out with all required material etc. and complete the whole work as per the requirement and to the satisfaction of engineer in charge.

The rate shall be for a unit of one number basis.

**Item No. 45:****Providing and fixing Overhead Water Tanks "Sintex" or equivalent of 1000 Liters capacity with all necessary plumbing fitting etc. comp. as directed by Engineer-in-charge.****MATERIALS AND WORKMANSHIP:**

Overhead water tanks "Sintex" or equivalent of cylindrical vertical tanks with closed top with of self-supported type having approved grade of polyethylene, molded to seamless and suitable for potable water tank of capacity as mentioned in Schedule-B as per company's dimensions provided with G.I. fittings of size 25mm Dia for inlet, outlet, overflow and scour connections and float valves etc. complete placed with all fittings fixing as directed by engineer in charge.

The rate for this work will be paid per number basis.

**Addl/Asst.Engineer**  
**R.M.C.**

**Dy.Ex.Engineer**  
**R.M.C.**

**ADD. CITY ENGINEER**  
**R.M.C.**

**Signature of Contractor with Seal**

<u>LIST OF APPROVED MAKE (Civil Work)</u>					
NO.	SPACE	PARTICULAR	COMP		
1	Ready mixed Concrete		Lafarge/Bhanu/ultratech/RJ/Krishna		
2	Ordinary Portland Cement (Minimum 53 Grade)		UltraTech/Birla/ACC/Ambuja/Hathi/Sanghi		
3	Flush doors		BIS approved brand (ISI Mark)		
4	FRP Doors		Fibrevent, Technoskills or Equivalent (or as approved by Engineer in Charge)		
5	PVC Doors with Frame		ISI and approved by Engineer in Charge		
6	Hydraulic floor Spring/Door		Everite, Garnish, Hardwyn		
7	White Cement		JK White	Birla White	Nihon White
8	Reinforcement/Structural Steel (Each LOT shall accompany manufacturer's Test Certificate)		(TMT BARS Fe-500) Gallent/ET/ASR/Friend or BIS approved manufacturers		
9	Dining, Drawing, Bed Room, Kitchen, Toilet/Bath/Wash etc,	Vitrified/Ceramic/Glaze Tiles/Wall Tiles/Parking Floor Tiles	Somani/Nitco/Kajaria/RAK/Jhonson/Simpolo/Bell/Asian/Euro/Vermora		
10	Toilet/Bath/Wash	PVC/UPVC pipes & Fittings	Astral/Supreme/Prince/finolex /Simco/Plumber With Clamp open type of outer side of Building		
11		Sanitary ware	Jaquar/cera/Hindware/Jhonson and any other standard brand as approved by engineer-in-charge		
12	Teak Wood		Bulsar	C.P. Teak	
13	Interlocking Paver blocks		ISI Mark – Balaji, Regency, Supreme		
14	Plywood Products Commercial Block Board Commercial Ply Teak Ply		ISI Mark as approved by engineer-in-charge		
15	Glass/Float/Sheet		Saint Gobain	Modi/HNG	Asahi
16		Laminates	Neolux/Formica/Sunmica/Merino or as per ISI		
17	Aluminum sections		Jindal	Indal	Banco

- A) The contractor shall produce samples of the materials for approval of the RMC/PMC. The material of the make out of the above as approved by the RMC/PMC shall be used on the work. RMC/PMC member has not bid to give any reason for rejection of any brand from the above list and its decision will be considered 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.

The agency has to use item/material mentioned in the list above. In no case other item/material shall be allowed except those mentioned in the list unless and until the unavailability of the above said item/material noticed that too, prior approved of RMC/PMC



**D.ADDITIONALCONDITIONS**

#### **D. ADDITIONAL CONDITIONS:**

1. The work shall consist of removing, as hereinafter set forth; existing culverts, bridges, pavement, kerbs and other structures like guards-rails, fences, utility poles, manholes, catch basins, inlets, etc. Which are in place but interfere with the new construction or are not suitable to remain in place and of salvaging and disposing of the resulting materials and back-filling the resulting trenches and pits.
2. Existing culverts, bridges, pavements and other structures which are within the work area and which are designated to be removed, shall be removed up to the limits and extents specified in the drawings or as indicated by the Engineer-in-charge.
3. Dismantling and removal operations shall be carried out with such equipment and in such a manner as to leave undisturbed, adjacent pavement, structures and other work to be left intact.
4. All operations necessary for the removal of any existing structure which might endanger new construction shall be completed prior to the start of new work.
5. The structures shall be dismantled carefully and the resulting materials so removed as not to cause any damage to the serviceable materials to be salvaged, the part of structure to be retained and any other properties or structures nearby.
6. Unless otherwise specified, the superstructure portion of culverts/bridges shall be entirely removed and other parts removed to below the ground level or as necessary depending upon the interference they cause to the new construction. Removal of overlying of adjacent material if required in connection with the dismantling of the structures shall be incidental to this item.
7. Where existing culverts / bridges are to be extended or otherwise incorporated in the new work only such part or parts of the existing structure shall be removed as are necessary to provide a proper connection to the new work. The connecting edges, shall be cut, chipped and trimmed to the required lines and grades without weakening or damaging any part of the structure to be retained. Reinforcing bars which are to be left in place so as to project into new work as dowels or ties shall not be injured during removal of concrete.
8. Pipe culverts shall be carefully removed in such a manner as to avoid damage to the pipes.
9. Steel structures shall unless otherwise provided be carefully dismantled in such a manner as to avoid damage to members thereof. If specified in the drawing or directed by the Engineer-in-

- charge that structure is to be removed in a condition suitable for re-erection, all members shall be match marked by the contractor with white lead paint before dismantling. End pins, nuts, loose, plates, etc. shall be similarly marked to indicate their proper location. All pins, pinholes and machined surfaces shall be painted with a mixture of white lead and tallow and loose parts shall be securely wired to adjacent members or packed in boxes.
10. Timber structures shall be removed in such a manner as to avoid damages to such timber or lumber as is designated by the Engineer-in-charge to be salvaged.
  11. In removing pavements, kerbs, gutters, and other structures, like guard rails, fences, manholes, catch, basins, inlets etc. where portions of the existing construction are to be left in the finished work, these shall be removed to an existing joint or cut and chipped to a true line with a face perpendicular to the surface of the existing structure. Sufficient removal shall be made to provide for proper grades and corresponding with the new work as directed by the Engineer-in-charge.
  12. All concrete pavements base course in carriageway and shoulders etc. designated for removal shall be broken to pieces whose volume shall not exceed 0.02 cubic meter and, stockpiled at designated locations if the material is to be used later or otherwise arranged for disposal as directed.
  13. Where directed by the engineer-in-charge holes and depressions caused by dismantling operations shall be backfilled with excavated or other approved material and thoroughly compacted in line with surrounding area.
  14. All materials obtained by dismantling shall be the property of Government. Unless otherwise specified, materials having any salvage value shall be placed in neat stack of like material within the right-of-way as directed by the Engineer-in-charge, for which contractor will remain responsible for its safe custody and preservation for 60 days after recording measurements of the salvaged material.
  15. Pipe culverts that are removed shall be cleared and neatly piled on the right-of-way at points designated by the Engineer-in-charge.
  16. Structural steel removed from old structure shall, unless otherwise specified or directed be stored in a neat and presentable manner on blocking in locations suitable for loading. Structures or portions thereof which are specified in the contract for re-erections shall be stored in separate piles.
  17. Timber of lumber from old structures which is designated by the Engineer-in-charge as materials to be salvaged shall have all nuts and bolts removed from and shall be stored in neat piles in

locationssuitableforloading.

18. All the products of dismantling operations which in the opinionoftheEngineer-in-chargecannotbeusedorauctionedshall bedisposedasdirected,within100meters.
19. The work of dismantling structure shall be paid for in units indicatedbelowbytakingmeasurementbeforeandafter,asaplicable;
- |       |   |             |
|-------|---|-------------|
| i)    | Dismantlingbrick/stone/concrete<br>Cubic Meter(Plainandreinforced)masonry |             |
| ii)   | Dismantlingflexibleandcement<br>Cubic Meterconcretepavement               |             |
| iii)  | Dismantlingsteelstructure   | Ton         |
| iv)   | Dismantlingtimberstructure  | CubicMeter  |
| v)    | Dismantlingpipes,guardrails,kerbs,<br>guttersandfencing                   | LinearMeter |
| vi)   | Utilitypoles  | No.s        |
| vii)  | Removalofflooring–CCPrecastTiles/<br>Shahbadiladi/tilesflooring           | Sqr.Mtr     |
| viii) | Removalofroaddividerstrip   | No.s        |
20. The contract unit ratesforthe various items of dismantling shall befor paymentin full for carrying out the required operationsincluding full compensation for all labor, materials, toolsequipment, safeguard and incidentals necessary to complete the work.These will also includeexcavation and backfilling where necessaryand for handling, salvaging, pilling and disposing of the dismantledmaterialwithinalliftsanduptoa leadof100meters.

## **DETAILED TECHNICAL SPECIFICATIONS**

### **Item No. 1:**

### **Excavation of Foundation in Soft Murrum Soil or Sand from 0.0 mtr. to 1.50 mtr depth including lifting and laying 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 lawn, 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 obtained shall be property of the government and shall be conveyed and stacked as directed within RMC limit. The roots of the tree coming in the sides shall be cut and coated with a asphalt.

**2.2** The rate of site 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 foundations 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 slope 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 upto 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.

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.

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 Preservation 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 National 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 foundations shall be made according to the section of trench 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.2:**

- A) Supplying of hard murrum binding material.**
  - B) Spreading bindage or road crust filling the gaps in metal and leveling to camber and gradient and directed murrum.**
- A) Material for the purposes shall be approved quality. Any material which is found inferior shall be rejected and contractor shall remove such rejected material from the site at his own cost.

The material shall be got approved by the CITY ENGINEER prior to collection on the site. It shall be free from all rubbish, dust and any organic materials as well as clouds of black cotton soils.

For road work, complete stocking of materials as per requirements shall be carried out 200 m length or as per condition of site or as per instructions of site in charge before spreading. The stacks of materials

shall be got cross checked by Dy.Ex.Engineer as per rules before spreading.

Where any doubt exists as whether quantity of stacking of murrum corrected by contractor, no extra payments shall be claimed by contractor. If the quantity of murrum in any stack found less than standard measurement viz; 1.5cmt. The entire shall be paid on the basis of the quantity so found.

The payments shall be on cubic meter basis without deduction for voids. The contractor shall maintain all stacks in regular and proper size till whole material shall not measure and finally accepted by the department.

The rates include cost of collection, conveyance to the site with all lead and lift and filling the boxes including all labours, tools, equipment and other expenses. The rates quoted are inclusive of all such tools, duties, royalties, taxes etc.

- B) Spreading of material shall be started after the full supply in particular length is collected, measured and recorded. Permission of Engineer in-charge shall be obtained before spreading. It shall be seen that formation is dressed to required camber and grade. If the murrum is to be spread over the metaled surface then the spreading shall be uniform and as it has to act as binding surface. It shall be used for filling the interstices of metal and forming a smooth running surface as far as possible. Murrum bindages shall be spread evenly with a twisting motion of the baskets. No more murrum shall be used than specified as bindage. The contractor shall do good all unevenness, depression, projection etc. during consolidation work. Rate of these items includes all these operation except consolidation. **Also, the work is to be carried out with Mini Roll/Road Roller/ Hand Rollas may be required for the work as per the requirement and instruction of engineer in charge.** The payments shall be made on cubic meter basis.

The testing of material is to be carried out by the Agency at his own cost.

**Item No. 3 and 4:**  
**RCC work 1:2:4 for coping using aggregate of size 10-20mm. centring, curing, finishing etc. complete (without reinforcement)**  
**And**  
**Providing and laying cement concrete in M-20 or 1:1½:3 in nominal mix (1 cement:1½ coarse sand:3 graded stone aggregate 20mm. nominal size) curing complete excluding reinforcement for reinforced work in (C) Slabs, landings shelves, balconies, lintels, chhajja, beams, girders and cantilever (E) Stair case**

#### **1.0 Materials:**

Water shall conform to M-1, cement shall conform to M-2, Sand shall conform to M-4, Grit shall conform to M-8. Graded stone aggregate 20

mm, nominal sizes 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 $\frac{1}{2}$ :3 (1 Cement:1 $\frac{1}{2}$  coarse sand: 3 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 $\frac{1}{2}$ :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 50kgs of cement to be taken as the sum of individual volume of fine and coarse aggregates, max.	Proportion of fine aggregate to coarse aggregate	Quantity of water per 50Kgs of cement maximum
M-100(1:3:6) M-150(1:2:4) M-200 (1:1 $\frac{1}{2}$ :3) M-250(1:1:2)	300 Litres 220 Litres 160 Litres 100 Litres	Generally 1.2 for fine aggregate to coarse aggregate by volume but subject to an upper limit of 1:1.1/2 and lower limit 1:3	34 Litres 32 Litres 30 Litres 27 Litres

- 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 aggregates 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 aggregates should usually be restricted to 5 mm, less than the minimum distance between the main bars, or 5 mm less than the minimum cover to the rebar 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 great 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 cu. metre. Boxes of suitable size shall be used for measuring sand aggregate. the size of boxes (internal) shall be 35 x 25 cms, and 40 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.
- 3.2.2 When 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 cements shall be increased by 10 percent above that specified.

- 3.2.3 Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed to by the engineer-in-charge the first batch of concrete from the mixture shall contain only two thirds of normal quantity of coarse aggregate. Mixing plants shall be thoroughly cleaned before changing from one type of cement to another.

### **3.3 Consistency:**

- 3.3.1 The 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:**

- 3.4.1 Contractor shall give the engineer-in-charge due notice before replacing 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.
- 3.4.2 Centering design and its erections shall be got approved from the engineer-in-charge. One carpenter with helper shall invariably be 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:**

- 3.5.1 The 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, snow 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.
- 3.5.2 Concreting 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. Except 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.

3.5.3 Unless 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 13mm thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13mm 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 conditions shall be kept at sites so that spare equipment is always available in the event of breakdowns. Concrete shall be judged 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 or hessian 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.

### 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
1-5cmt	1	16-30cmt	3

6-15cmt	2	31-50cmt	4
51andabove	4±oneadditionalforeachadditional50morpartthereof		

**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.

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<sup>2</sup> 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 are 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 considerations 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°C) 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) Beams of fish (props left under) - 7 days
- c) Removal of props slabs:
  - i) Slab spanning up to 4.5m - 7 days
  - ii) Spanning over 4.5m - 14 days
- d) Removal of props for beams and arches
  - i) Spanning up to 6m - 14 days
  - ii) Spanning over 6m - 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 formwork, it shall be cleaned and made good to the satisfaction of the engineer-in-charge. After removal of work and shuttering, the City Engineer 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 purposes shall be cut inside the cement concrete member to a depth of at least 25 mm below the surface of the concrete and the resulting holes be filled by cement mortar. All fins caused 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 thorough 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 placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement. In case of cantilevered or doubly reinforced 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 by means of timber templates slots accurately cut in them, the templates shall be removed after concreting has been done below it. The bars shall also suitably be tied by means of annealed steel wires to the shuttering to maintain position during concreting.

1.2. All bars, projecting from pillars, columns, beams, slab 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.

#### **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 for
- (a) Ends of dissimilar materials such as joints, beams, posts, girders, rafters, purline trusses, corbels and steps etc. upto 500 sq.cm. in section,
  - (b) Opening upto 0.1 Sq.M.
- 4.2. The rate includes cost of all materials labour, tools and plant required for missing, 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 formwork.
- 4.3 The rate shall be for a unit of one cubic meter.

**Item No. 5:**  
**Brick Work**

**Materials:**

Water shall conform to M-1.

**Cement:**

Cement shall conform 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 shall not break 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  $\pm 1/8"$  (3mm) width:  $\pm 1/16"$  (1.5mm) Height:  $\pm 1/16"$  (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 course. Each brick shall first be properly bedded and set true by gently tapping with handle of trowel or wooden mallet. Its 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 course 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 rule, 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 be 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 rains 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 plans or as directed shall be final. Battered tapered and curved position shall be measured net.

**Item No. 6:**

**20mm thick sand face cement plaster on walls and RCC structure up to height to 10m and above ground level consisting of 12mm thick backing coat of C. M. 1:3 (1 cement:3 sand) and 8mm thick finishing coat in C. M. 1:2 (1 cement:2 sand) etc. complete**

**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 scaffoldings shall be sound. These shall be properly examined before erection and use. Stage scaffoldings shall be provided for ceiling plaster which shall be independent of the walls.

**Preparation of background:**

The surfaces 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 formwork, the shall be roughed by wire brushing and all the resulting dust and loose particles 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 operations 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 15x15 cm shall be first applied horizontally and vertically at not more than 2 meters interval 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 then 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 junction etc. shall be carried out with proper templates to the size required.

Cement plasters 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 area so 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 brickwork, 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 to wall 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.

Soffit of stair shall be measured as plastering on ceilings. Elevation of soffit 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:

- a) No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 sq.mt. each and no additions shall be made for reverse, jambs, soffits, side etc. of these openings, for finish to plaster around ends of joints, beams, posts etc.
- b) 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.
  - i) When both faces of all walls are plastered with same plaster. Deductions shall be made for one face only.
  - ii)
    - 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. 7:**  
**Cement Plaster With Neeru + Cement Finish**

**Material:**

Water shall confirm to M-1.

Cement Mortar shall confirm to M-11

**Workmanship:**

12mm 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 properly examined before erection and use. Stagescaffolding 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 to wall 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. E. lowigns soffit 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, step 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:

- a) 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.
- b) 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.
  - i) When both faces of all walls are plastered with same plaster. Deductions shall be made for one face only.
  - ii)
    - ✓ 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. 8:**

**Apply 3 coats of putty of brands Asian paints, JK, Birla company after 12mm rough plaster including material and labour of approved brand and manufacture on new wall surface to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.**

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.

The rate for this item will be paid on one square meter basis.

**Item No. 9:**

**Plastic Emulsion paint (two coats) (Asian Paint, ICI, Dulux, Nerolac, Berger, etc. of approved type (with prime coat):**

**Materials:**

The enamel paint shall satisfy general requirements in specifications of oil paints. Enamel paint shall conform to I S Latest edition.

**Workmanship:**

The materials required for work of painting work shall be obtained directly from approved manufacturer or approved dealer and brought to the site in maker's drum, bags etc. with seal unbroken.

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 state 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 leftover paint shall be put back into store tins. When not in use, the containers shall be kept properly closed.

If for any reasons, thinning is necessary, the brand of thinner recommended by the manufacturer shall be used.

The surface to be painted shall be thoroughly cleaned and 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 unfavourable weather and all the surfaces shall be thoroughly dry before painting work is started.

### **Application of paint:**

Brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consist of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately 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.

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 the engineer-in-charge before next coat is started.

Each coat except the last coat shall be lightly rubbed down with sand paper of fine pumice stone and cleared 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 moulding etc. shall be left on the work.

Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. Approved best quality brushes shall be used.

### **Mode of measurement and payment:**

The new steel and other metal surfaces shall be measured under this item. All the work shall be measured net in the decimal system as executed subject to the following limits unless otherwise stated hereinafter.

- a) Dimensions shall be measured to the nearest 0.01 meter.
- b) Areas shall be worked out to the nearest 0.01 meter.

No deduction shall be made for openings not exceeding 0.5 sq.m. each and no addition shall be made for painting to beddings, moulding, edges, jambs, soffits, sills etc of such opening.

In case of fabricated structural steel and iron work, priming coat of paint shall be included with fabrication. In case of trusses, if measured is sq.m compound girders, stanchions, lattices, girder and similar work, actual area shall be measured and no extra shall be paid for painting on bolt heads, nuts, washers etc. No addition shall be made to the weight calculated for the purpose of measurement of steel and iron works for paint applied on shop or at site.

The different surfaces shall be grouped into one general item, areas of uneven surfaces being converted into equivalent plain areas in accordance with the table given as per Annexure-II for payment.

The rate is including priming coat.

The rate shall be for a unit of one square meter.

**Item No.10:****Apex Color work on Outer side of Wall (Two coats) (with Base Coat) FINISHES****EXTENT AND INTENT**

The Contractor 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 workers, approved by the Engineer-in-charge of RMC for this work.

**STORAGE**

Storage of materials to be used on the job shall be, only in a single place approved by the Engineer-in-charge of RMC for this work. Such storage places 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 Engineer-in-charge of RMC for this work, 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 these 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 Engineer-in-charge of RMC for this work. The Contractor shall as far as possible use pre-mixed manufacturer's shades and shall prepare a sample of the shade selected and submit same for approval by the Engineer-in-charge of RMC for this work. No work is to proceed until the Engineer-in-charge of RMC for this work 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 Engineer-in-charge of RMC for this work.

Painting/finishing work shall be taken in hand only after all other civil work is completed.

Buildings where painting/finishing work is to commence 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 unobstructed 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 paris / 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 containers 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 machinery 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 Engineer-in-charge of RMC for this work 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 Engineer-in-charge of

RMC for this work 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 sponger rollers or stippling brushes as called for.



The rates shall be paid for a unit of one square meter basis.

**Item No. 11:**  
**Providing & laying Vitrified Tiles for flooring work in 1st**  
**Quality supply and fixing of vitrified tiles flooring work of size more than**  
**0.60x0.60mtr (1st quality)**

**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 them as on top of wooden planks across and equal on it.

The Color vitrified tiles shall be laid on cement mortar bedding of 10 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 10 mm at any place and average 12 mm 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 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 or trowel to a depth of 5 mm 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. 12:**

**Providing and laying glazed tiles of 6mm thick of approved quality (1<sup>st</sup> quality) of required size jointed with cement paste on 12mm thick cement plaster 1:3 (1-cement 3-Coarse sand) pointing white cement and jointed with white cement slurry**

**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 tiles shall be plus or minus 1.5 mm. The thickness of tiles shall be 6mm except as above the tiles shall conform 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 lump 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 centre line both ways. The Nahnitrap 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 in any way still the completion of the construction.

The rate for this item will be paid on one square meter basis.

### **Item No. 13:**

**Providing & Fixing Orissa Pan W.C. & European type of appropriate make incl. "P" or "S" traps required along with drain connection and all the necessary fixtures and half turn flush cock etc. of size 580mm x 440mm completed as directed.**

## **MATERIALS**

### **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 580x440mm with raised footrest.

## **WORKMANSHIP**

The pans shall be sunk into the floor and embedded in a cushion of average 15cm cement 1:5:10 (1 Cement: 5 Fine Sand: 10 Graded stone aggregate 40mm nominal size) or as specified. This concrete shall be left 15mm below the top level of the pan so as to allow for flooring and its bed concrete. The floor should be suitably stopped so that the wastewater is drained into the pan. The pans shall be provided with 100mm 'P' or 'S' traps as specified in with approximately 50mm seal. The joints in the pan and the trap shall be made leak-proof with cement mortar 1:1 (1 Cement: 1 Fine Sand).

The rates shall be paid for a unit of number basis.

### **Item No. 14:**

**White porcelain wash basin 560/410mm Indian make C.I. bracket with fitting chromium plated topes 25cm plastic waste pipe and 12mm pillar cock with comp.**

#### **1.0: Materials:**

- 1.1. The white glazed earthenware wash basin shall be 560mm x 410mm of 1<sup>st</sup> quality and make as approved by the Engineer-in-charge. The wash basin shall conform to M-59.

**2.0 Workmanship:**

- 2.1 The wash basin shall be fixed on the wall as and where directed. The wash basin shall be supported on a pair of R.S. or C.I. brackets fixed in C.M. 1:3. (1 cement : 3 sand). The bracket shall conform to I.S. : latest edition. The wall plaster on the rear shall be cut to rest the top edge of the wash basin. After fixing the basin, plaster shall be made good and surface finished to match with the existing one.:
- 2.2 The bracket shall be painted white with ready-mixed paint.
- 2.3. The C.I. brass trap and unions shall be connected to 32mm. dia. waste pipe which shall be suitably bent toward the wall and which shall discharge into an open drain leading to a gully trap. or direct in to the gully-trap on the ground floor and shall be connected to a waste pipe through a floor trap on the upper floors. C.P. brass trap and union may not be provided where the surface drain or a floor trap is placed directly under the basin and the waste is discharged into vertically.
- 2.4. The height of the front edge of the wash basin from the floor level shall be 80 cms.
- 2.5. The necessary inlet, outlet connections and fittings such as pillar cocks; CP Grass waste trap waste pipe, stopcock, chain wash rubber plug etc. shall be fixed.
- 2.6. The payment of fittings shall be made separately under separate items.

**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 as specified in workmanship.
- 3.2. The rate shall be for a unit of One number.

**Item No. 15:****FRP Doors supply all fitting and fixture complete**

Providing and fixing 28mm thick single shutter door with flush depressed panel design with core material PU foam done in situ & sandwich panel of 4 mm thick plywood & moulded in wooden blocks for fixtures. FRP thickness to be 1.50 mm to 2.00 mm including providing and fixing FRP moulded section frame of section size 100mm x 50mm chamfered type with FRP thickness of 2.00mm and core of rigid polyurethane foam having density 32Kg/cmt to 36 Kg/cmt., compressive strength 3.5 Kg./sqcm to 4.5 Kg./sqcm. and fire retardant grade, PU foam shall be done in situ with Canadian Ponderosa wooden blocks for fixtures. In built hold fast arrangement to use fasteners for fixing with masonry or R.C.C. The whole section of frame and shutter shall be water proof, acid/alkali resistant & well coat colour. the frame and

shutters shall be fixed with all necessary stainless steel fixtures and fastenings etc. complete as per direction of engineer in charge.

#### **Materials:-**

Frame materials shall be of fire extinguishing grade FRP skin having section 100mm x 50mm chamfered type with thickness of 1.50mm to 2.00mm and core material shall be fire extinguishing grade rigid polyurethane foam having density 32Kg/cu.cm to 36Kg/cu.cm, flexural strength 1.8Kg/Sqcm to 2.00 Kg / Sqcm and compressive strength 3.5 Kg / Sqcm to 4.5 Kg / Sqcm. Whole frame shall be water proof, weather proof, termite proof and mild acid/alkali resistance. P.U foam shall be done in situ with plantation wooden pieces embedded inside for holding fixtures and stiffening. Frame shall be straight in line, level and having three joint-less pieces. Frame shall be fixed in masonry/R.C. with Mild Steel hold fast or with 115mm long screws as hold fast with sleeve in position and finished in colour cement. 28 mm thick shutter in depressed panel design shall be having 1.5 mm to 2.0 mm thickness fire extinguishing grade FRP skin, sandwich panel of 4mm thick plywood and embedded wooden pieces for stiffening as well as holding hinges and fixture, all molded into a one piece shutter. Core material shall be injected fire extinguishing grade rigid polyurethane foam done in situ having density 32Kg/Cu cm to 36Kg/Cu cm compressive strength 1.8Kg/Sq cm to 2.00Kg/Sq cm, flexural strength 3.5Kg/Sq cm to 4.5Kg/Sq cm. Whole shutters shall be water proof, weather proof, termite proof and mild acid/alkali resistance. 28mm thick depressed panel FRP shutter shall be joint-less. It shall be straight and smooth and of standard shape finished in gel coat. All necessary fixture and fastenings shall be fixed where wooden pieces are provided.

#### **Workmanship:**

Frame shall be fixed in masonry/R.C. member. Shutters shall be fixed in true line; level and proper manner having 2.0 to 3.0 ply i.e. air space for smooth and easy working. Pull handles, Door stopper, Door stopper, bearing hinges & S.S self tapping Philips cross head special screws conforming to anti corrosive high grade AISI 304 stainless steel of standard make or as equivalent approved by Engineer-in-charge conforming to anti corrosive high grade AISI 304 stainless steel only, & Tower bolt of the make Orbit or as equivalent approved by Engineer-in-charge conforming to standards of ORBIT & anti corrosive high grade AISI 304 stainless steel only.

All fixtures and fastenings of standard make shall conform to AISI 304 Grade Stainless Steel.

The following table presents main elements (forming the Chemical composition) of AISI 316 Grade Stainless Steel.

- It can withstand the corrosion caused by atmospheric/environmental or major chemical reactions.
- It can resist high temperatures without going under any deformity which makes it highly recommended for fire safety doors in any building.
- It shall have remarkable creep strength and Rupture strength.
- It shall be repelled the Bacteria & shall be made higher degree of hygiene.

- It shall be of natural finish, it shall not require regular cleaning or maintenance making it most suitable for public places.
- It shall tolerate forceful and intense use.
- Specially developed fixing stud and grub shall be used to ensure accurate fitting of elements and eliminate shaking of elements.

#### **Fixtures & Fastenings:**

Following fixtures and fastenings shall be used for single shutter. All fixtures and fastening of the make shall be of anti corrosive high grade AISI 304 stainless steel in Glossy & satin combination finish only. Fixtures and fastening of standard make shall be fixed by skill person only.

The rate shall include anti corrosive high grade AISI 304 stainless pull handle, hinges, door stopper in Glossy & satin combination finish of the standard make including fixing with S.S self tapping Philips cross head special screws and Stainless steel tower bolt of the make Orbit. The size and number of hinges shall be as per table given above  $\pm 1.50$  mm tolerance will be allowed in thickness of shutter and  $\pm 1.20$  to  $2.00$  mm for size of frame.

#### **Mode of measurements & payment:**

The rate for shutter includes cost of anti corrosive high grade AISI 304 stainless pull handle, Door stopper, hinges, S.S self tapping Philips cross head special screws in Glossy & satin combination finish of standard make, tower bolt of the make orbit. The dimensions of the door shall be measured clear size of the opening made for fixing of door with frame.

The rate shall be for a unit of  $1$  sq. metre.

#### **Item No. 16:**

#### **Aluminium section window work (with 3 track - one mosquito net) (indal) (with necessary all fittings)**

**Providing and fixing Structural Glazing with spiders using the 17 Micron anodized of approved colour aluminium section with transium, mullion of size 62.5 mm x 25 mm x 2 mm with using 6 mm thick reflective structural glass of approved make, colour, toughened and shade and fixed with silicone sealant and spacer tap and at corner sealed neoprene foam dust and Air sealed gasket mired in lading scaffolding, cleaning of glass etc. complete at all heights and lift with all necessary fitting and fixtures, anchor fasteners, necessary M.S. or Aluminium brackets, suitable design for openable window as per Architectural drawing and as directed by Engineer-in-charge. Grooves between the glasses to be filled with sealant of Dow Corning- structural sealant 995, weather sealant 789. The entire facade should be water proof. The mullions are to be connected to bracket by SS- 304 nut bolts. Measurements shall be given as per actual execution of the work**

#### **ALUMINIUM EXTRUSION**

Aluminium Extrusion used in Structural Glazing, Stick Glazing, all type of Windows, Doors. Aluminium Extrusions shall be 6060-T6 alloy conforming to BS- 1474-1987. The extrusions shall be Clean, Straight with sharply defined lined and

free from distortion and defects impairing appearance, strength and durability. The extrusion shall be suitable for wall thickness and profile for rigidity and strength in respect to tensile, shear, bending and bearing stresses, capable of providing local and lateral stability.

### **FINISH**

The extrusion shall be finished in 'electrolytic colour anodizing' of approved shade and colour for an anodic coating of minimum 20 microns (+/-2 microns).

### **GLASS FOR STRUCTURAL GLAZING, WINDOWS & FIXED GLAZING**

The glass will be of approved make and will be as specified by the architect. The glass samples will be submitted for approval.

### **ANCHORAGE SYSTEM**

The structural glazing system, will be fixed to the main building structure using components of alloy steel or other materials appropriate and conforming to statutory requirements and code of practices. In general, Galvanized steel brackets shall be used as the anchoring system. The type and size of the bracket to be selected in accordance with engineering calculations to withstand 200 Kg/Sqm x 1.5 times for safety factor. Mullions shall be mounted to the brackets of desired thickness and size. All fastening and transoms shall be of stainless steel bolts and nuts with spring washers.

### **HARDWARE FITTINGS**

All screws, plugs, nuts or other fastening devices shall be of stainless steel that will not result in the corrosion with installation. 4 bar stays stainless steel arm shall be used in openable windows along with peg stays for openable window.

### **SILICONE SEALANT**

Sealant for weather seals shall be Dow Corning 789 or Equivalent. Sealant for Structural Glazing shall be Dow Corning 995 or Equivalent and shall be applied in accordance with manufacturer's specification.

### **WEATHER STRIPPING**

Weather Stripping shall be extruded Neoprene / EPDM or Equivalent and of the required size.

### **GLAZING TAPE**

Glazing Tape for Structural Glazing will be special two ways adhesive Black coloured Tape equivalent to Norton Tape.

### **PROTECTION**

The finished surface will be protected with a self-adhesive peel-off with two layers of white and black, tested to withstand at least 9 months exposure to local weather condition, without losing the original peel-off characteristic or causing stains or other damages.

#### **Mode of measurement & Payment:**

No payments shall be made for weight of screws, bolts, nuts etc. Only Finish area should be measured for payment. The rates shall be for unit of one square metre.

**ItemNo.17:****14.43.(A)Kotastone(Polished,Greencolour)flooringover 25mm(average)thickbaseofcementmortar1:6(1cement:6coarsesand,)laidoverandiointedwithgreycementslurryincludingrubbingandpolishingcomplete25mm.thick****1.0. Materials**

- 1.1. Water shall confirm to M-1. Lime mortar shall confirm to M-10, Cement mortar shall confirm to M-11, Polished kotastone 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 to be 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 angled 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 1:6 (1 cement : 6 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 mallet till it is properly bedded in level. with and close to the adjoining slab. The joints 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 dado. 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 the second polishing shall be done with carborundum stone of 220 to 350 grade grit fitted in heavy machine. Water shall be properly used 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 rates 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 area upto 0.1 sq.mt.

3.2. The rate for item shall be for a unit of one sq. meter

### **Item No. 18:**

### **Providing Steel work for RCC work supplying, bending, binding & hooking by binding wire with Thermo Mechanically Treated (TMT) bars conforming to IS 1786 Fe-500**

#### **1:0. Materials**

1.11. TMT bars of Fe-500 should be conforming 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 on 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 weaken the material. Bars bent during transport or, handling 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 1mm 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 for 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 from 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 nor 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 transmit the full stresses of bars so the 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 transmit 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 for 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. 19:**

#### **Supply and laying of machine crushed aggregate of 25-38mm**

Machine Crushed metal shall be of approved quarry and it should be approved by the In-charge Site Engineer prior to collection.

The machine crushed metal shall be hard, tough, sound, durable, black trap field metal of close texture, with the decay and weathering. Each piece of the stone shall be angular and roughly cubical in shape and round elongated or flaky material shall be rejected. No round or oblong pebbles or at quar chips larger or smaller than specified size shall be allowed.

All unsound, weathered or disinclined stone obtained from the upper surface layer of the quarry or other layer of boulders shall be rejected. The physical requirement for standard size metal shall conform to the test results indicated in Table No.1. The metal shall be nearly uniform in size as possible and shall conform to following minimum requirements of passing through the rings.

The physical requirement for standard size metal shall conform to the test results indicated in the Table No.1 below:

**Table No.1**

<b>Type of Const.</b>	<b>Test Method</b>	<b>Requirement</b>
Base (a) Los Angeles abrasion Value Or	IS: 2386 Partiv	50% (Max.)

Aggregate Impact Value.	IS 2386 Part I or IS :5640	40% (Max.)
(b) Flakiness index & Elongation Index	IS:2386 Part I	30% (Combined.)
(c) Water Absorption	IS:2386 Part-3	2% (Max.)

**Table No.2**

Grading No.	Size Range	IS Sieve Designation	Per cent by weight passing
2	25mm to 38mm	90mm	100
		63mm	90-100
		53mm	25-75
		45mm	0-15
		22.4mm	0-5

Wherever and doubt exists as to whether the above requirements are satisfied in whole or part. The collection of M.C. metal shall be got screened by the contractor, it so ordered by the In-charge Site Engineer and for which no extra payment shall be claimed by the contractor.

Any collection which does not fully satisfy the above requirements is liable to be rejected altogether. Frequency of test shall be as per Ministry of Surface Transport Specifications. Agency has to submit completed drawing of leveling after each layer of work as mentioned in Special Conditions of Contract.

Also, the work is to be carried out with Mini Roll / Road Roller / Hand Rollers may be required for the work as per the requirement and instructions of engineer in charge.

The measurements shall be taken on cubic meter basis.

**Item No.20:**

**Supply and fixing of 60 mm thick M-30 i.e. compressive strength of 300 Kg /sq.m. cement concrete rubber mold interlocking paving blocks (Grey Color) ISI Mark to be supplied and fixed as instructed with Concreting 1:2:4 the end of blocks (with Cement joints) in bedding of black stone sand for 50mm thick leveling and fixing of interlocking blocks in line level on it with compacter machine and cleaning and filling the joints with sand (without cement vata) including cement concrete prop. 1:2:4 as per instruction in gap at end block and color as per instruction including curing complete**

**5.1 Paver Block Manufacturing facilities**

RAJKOT MUNICIPAL CORPORATION, at its discretion shall nominate its representative for inspection of the factory. Party shall co-ordinate and co-operate with representative of RAJKOT MUNICIPAL CORPORATION. The party shall inform the address, telephone numbers and other details of the workshop and the contact person to enable RAJKOT MUNICIPAL CORPORATION depute its representative. The party shall allow entry to RAJKOT MUNICIPAL 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 / sqm 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 cutoff of hydraulic circuit without any manual interference. In case, paver mould by manual force or by machine without auto cutoff 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 measurements 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.

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) (Portland-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 siliceous 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. PaversBlockCharacteristics**

- 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  $30 \text{ N/mm}^2$  (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 MUNICIPAL 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 surfaces 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 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/sqmm) 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. PaverBlockDimensions**

Thickness	60/80mm
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Shape	Regular(UniformshapewithnoHollowor Cracks)
Chamfer	5mmto7mmalongtopedges
ThicknessofWearing 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 betheminimumthicknessofthe wearinglayer)
PlanAreaA <sub>sp</sub> (Ref.Cl.B-3.3 Annex B, IS-15658 (LATEST))	Maximum0.03 m <sup>2</sup>
Colour	Natural cement Grey colour without use of any pigment OR colour as specified
DimensionalTolerance	TolerancesasperIS-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. TestingofPaverBlocks**

##### **1FOR60/80MMPAVERTILES**

<b>TEST</b>	<b>SPECIFICATIONAverageValues</b>
28 day Compressive Strength	Minimum30 MPa(N/Sqmm)
AbrasionResistance	Maximum 2 mm [i.e. 10 units of 1000 mm <sup>3</sup> per 5000 mm <sup>2</sup> reported as per E-5 of Annex E of IS-15658 (LATEST)]
WaterAbsorption	Avg. of 3 units - Maximum 6% by mass (restrictedto7%inindividualtestunits)

**Sampling and Testing Procedure strictly As Per IS-15658 (LATEST).**

#### **5.6. LayingofPaverBlocks**

##### **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 MUNICIPAL CORPORATION within seven days of receipt of call-up. RAJKOT MUNICIPAL CORPORATION shall, through regular vendors arrange to carryout such WBM, wherever required. Before taking over thesite, 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, RAJKOTMUNICIPAL CORPORATIONshallcarryoutWBMasperowndesign,andcontractor 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 drainages 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 BEDDINGS AND 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.

SISSIEVE SIZE	%PASSING
9.52mm	100
4.75mm	95-100
2.36mm	80-100
1.18mm	50-100
600microns	25-60
300microns	10-60
150microns	5-15
75microns	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 variations 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 spacersto 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 metres 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 recompactd 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:

<b>ISSIEVE SIZE</b>	<b>%PASSING</b>
2.36mm	100
1.8mm	90-100
600mm	60-90
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 blocks 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 Grad with concreting 1:2:4 and design shall be supplied by RMC. The bedding of black 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. 21:**

**Supply of Garden Black Soil:**

The black soil shall have to be supplied as per requirement and the soil shall have to be got approved from the engineer in charge thereby spreading and leveling shall also have to be carried out to the satisfaction of engineer in charge.

The rate will be paid for a unit of one cubic meter basis.

**Item No. 22:**

**Supply and Laying of Red Soil**

The red soil shall have to be supplied as per requirement and soil shall have to be got approved from the engineer in charge thereby laying, spreading and leveling shall also have to be carried out to the satisfaction of engineer in charge.

The rate will be paid for a unit of one cubic meter basis.

**Item No. 23:**

**Selection of grass supply as required cricket ground and instructed and selected by engineer-in-charge**

The grass has to be supplied as per requirement for cricket ground and shall have to be got approved from the engineer in charge thereby planting shall also have to be carried out to the satisfaction of engineer in charge.

The rate will be paid for a unit of square meter basis.

**Item No. 24:**

**Plantation of lawn, tree, flower bed etc in field area**

**Planting of lawn of approved quality at 15 cms diagonally, with fine dressing and maintenance of the lawn till virtual completion of soft landscape work removal of all thatching throughout the area along with appropriate use of anti weed when required grassing lawn including watering and fertilization.**

Planting of lawn of approved quality at 15 cms diagonally, with fine dressing and maintenance of the lawn till virtual completion of soft landscape work

removal of all thatching throughout the area along with appropriate use of anti-weed when required grassing lawn. Including watering and fertilization.

- The Natural grass (Lawn) are used standard and approved quality.
- Before the Planting of lawn quality contractor should be approved by Architect or engineer in charge.
- After the planting of lawn on regularly cleaning, watering, cutting through cutting machine and time to time remove to use weeds for date of completion to next two year.
- If for any reason some part of landscaping gets damage or dry agency have to re plant it at his cost in maintenance period.

#### **Mode of measurements & payment**

The rate shall include the cost of all materials and labour involved in all the operations described above. The Planting of lawn of approved quality shall be measured in Sq.mt.

#### **Item No. 25:**

#### **Iron Work as per drawing and Instructions all complete:**

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. 26:**

#### **Hockey Practice Net 2.4mm thick braided thread 1.75 Inches Block with all GST, transportation Etc. Complete**

Machine made Net should be provided to ensure uniform square meshes, providing better strength when faced with High Shock

HEAVY-DUTY WEATHER RESISTANT MATERIAL:

Nets to be specially treated to provide resistance to UV degradation which ensure better durability to be used for outdoor

INTERNATIONAL STANDARDS:

Hockey Net to Meet International Standards to practice

professionally. The rate will be paid for a unit of square meter basis.

**ItemNo.27:****Supply and fixing 13mm to 15mm Synthetic cricket pitch turf**

Providing and Laying Synthetic Grass multiple Sports of approved make. Grass staple size - 13/15mm, Roll width- 410 cm ± 2cm. Machine Gauge - 3/16" , Stitch Rate - 23/10 cm, Pile weight - 1150 gms/m<sup>2</sup> Number of Tufts - 300/m<sup>2</sup> Total Pile height - 15mm. Woven Polypropylene backing with fiber locked fleece. Latex Compound. All the edges to be seamed with PU Adhesive and polyester liner.

- 1) The synthetic turf has to comply to the following conditions:  
Synthetic Turf should be FIH approved with minimum **National Level Turf** certification. It should conform to FIH playing specifications in National level class-2 certification. After the installation, the bidder should be able to provide minimum **FIH certification for the National level Competition**. All costs towards testing of installed turf by FIH approved independent laboratories shall be borne by the agency.
- 2) The shock pad has to comply to the following conditions:  
Installation of shock pad has to be done as per FIH certification of the turf. Engineer-in-charge / Project Management Consultant (PMC) will approve shock pad specifications based on FIH certification before commencing work. The Contractor must submit Approved Certification of that shock pad has been installed as per FIH recommendation and manufacturer guidelines before laying of turf above the shock pad.
- 3) The rate will be paid for a unit of one square meter basis. No extra payment made for any subsidiary work made by agency for this process required in laying of artificial turf.

**ItemNo.28:****Fixing of CC Precast Road Divider stone 0.38x 0.30 x 0.20 cm including required material and labour (without colour)**

If Rajkot Municipal Corporation will provide cement concrete blocks prepared at Departmental Production Unit of Rajkot Municipal Corporation as per specified rate then Above CC Block is to be collected by the agency at their cost and transport it to the required site. No transportation will be paid. If Divider Block is not available in RMC Production Unit then the contractor shall have to purchase the same from the market. Required excavation work shall be carried out by the agency on the paver road or conventional asphalt road as per depth and width as directed by Site Engineer. No extra payment will be made. The excavated stuff shall be disposed off as directed by the site in-charge. Lime mortar of 1 part lime and 4 part of sand shall be well mixed and laid in minimum 50 mm thickness and C C precast rubber mould blocks shall be laid as per proper alignment keeping in mind the projection of tiles laying bed in the inner side of the block. Cement mortar of 1:6 is required to be used for 18 mm vatta and aesthetic groove shall be made as directed between the two blocks with proper vatta along with cement paste with required tamping to get complete as directed by Site Engineer. Minimum 75 mm x 75 mm triangular shaped lodhiya shall be casted with 1:2:4 cement concrete on both outer side of the block. The portion between the two blocks

below the tile flooring level shall be filled with quality hard murrum and shall be watered for achieving proper compaction as directed and shall be tampered properly.

If Cement concrete blocks shall be purchased from Corporation Departmental Production Unit by deduction from bill amount. If the material is supplied from RMC Store, Rajkot Municipal Corporation will be deduct the amount for such supply as per the current S.O.R. rate of Rajkot Municipal Corporation. Excavated stuff shall be removed and spread within 90m lead as directed and no extra cost will be given.

The required stone shall either be supplied by Store or if required, as and when it is to be purchased from market shall be got approved from RMC. The stone shall be of good in quality if it is purchased from market and of sharpened edge and of sufficient crushing strength as per I.S. The testing shall be carried out at the cost of the bidder

Mode of measurement shall be as per unit of number.

**Item No. 29:**

**Painting of Traffic Strip Footpath / Circle & divider blocks size 0.38x0.30x0.30 in two coats using enamel paint in different colors**

In this work the color work to road divider blocks except flooring including top the portion outside the road (from ground) is to be carried out with the oil paint of approved quality. The shade of various colors shall be used as approved by the engineer-in-charge. The work is to be carried out as per the instructions of engineer-in-charge.

For this color work, first of all primer is to be applied to old road divider blocks thereafter one coat is to be applied for whole work and shall have to be got checked from the engineer-in-charge and thereafter only the second coat is to be applied. The liquid between the two colors shall be done with due care and in line level.

The rate for this work shall be for running meter basis.

**Item No. 30 and 31:**

**Providing laying and jointing in true line and level 65 mm dia. U.P.V.C. Pipe (SCH- 80) for cold water including fittings of make PRINCE**

**/SUPREME/ASTRAL/FINOLEX as approved by Engineer In Charge. Pipes shall be fixed on the wall with the help of clamp at every two metre C/Cor shall be cancelled as directed including necessary fittings etc. including testing of pipe and joints and fixing the same with adhesive solvent. including cost of all materials**

**1. AIM AND FIELD OF APPLICATION**

- This specification has the aim to regulate the modalities of delivery and testing of UPVC pipes for conduction of water and food-fluids under

pressure, conforming to Dlgs 06/04/2004 n. 174 " regulation . concerning materials and objects which can be used within fixed plants of purification, treatment, conduction, and distribution of water used for human consumption".

## 2. STANDARDS OF REFERENCE

- UNI EN 1452 pipes systems of plastic material for conduction – unplasticated Polyvinyl- chloride – UPVC.

## 3. REQUIREMENT PRESCRIBED

- RAW MATERIAL The blend has mainly to be made of PVC (polyvinyl-chloride) with the sole addition of not toxic fluidification material and stabilizers, inert charges and other additives in quantities necessary to extrusion and to give a guarantee of stability of the characteristics of the polymer both during the working process and the life of the product.
- The blend used for the production of pipes, either in granules or powder, must not be used for any other utilization or working process than the required for the production of pipes.

### The use of the following materials is not admitted:

- plastifiers and/or mineral charges which may alter the mechanical and hygienical characteristics of the pipe.
- PVC from regeneration of already used polymers, even if selected.
- The use of material having been extruded once, obtained from grinding of pipes and fittings, which had already been extruded, even if they have the characteristics which conform to this specification.
- The characteristics from PVC powder have to be conform to the requirements of UNI EN 1452-1 and satisfy the data indicated in the following table:

Characteristics	Requirements
K Value	65 ÷ 70
apparent specific weight	0,5 ÷ 0,6
Particle size measurement	> 250mm 5% max. < 63mm
Residual VCM (Vinyl chloride-)	< 1ppm (1mg/kg max.)
Volatile substances	≤ 0,3%

## CARACTERISTICS OF FU-PVC BLEND

- The characteristics of the blend in shape of a pipe, must correspond to the requirements of UNI EN 1452-1 and satisfy the following table

Characteristics	Requirements
M.R.S. (according to ISO/TR 9080)	≥ 25MPa
specific weight	1,35 ÷ 1,46g/cm <sup>3</sup>
unitary yield point	≥ 48MPa
yield	< 10%
coefficient of elasticity	> 3.000MPa
coefficient of linear thermal expansion	0,06 ÷ 0,08mm/m°C
thermal conductivity	0,13kcal/mh°C



**PIPES**

- The pipes have to be produced with raw material (PVC blend) corresponding to the requirements as indicated in the previous table and as follows:

<b>Colour</b>	<b>Grey</b> considering that pipes may be exposed to sun-rays, a minimum fading of the colour on one part of the pipe must not compromise the quality of the pipe to be used and therefore may not be a reason of rejection of the same, on delivery. RAL7011	<b>RAL7011</b>
<b>Aspect</b>	the inside and outside surfaces of the pipes must be smooth, clean and without cavities, impurities and porosities or any other irregularity on the surfaces which might hinder their conformity to the norms of reference and these specifications. UNI EN1452	<b>UNI EN1452</b>

**MECHANICAL AND PHYSICAL CHARACTERISTICS**

- The characteristics of the pipes must conform to the requirements of UNI EN1452-2 and satisfy the requirements of the following table:

<b>Characteristics</b>	<b>Requirement</b>		<b>Methods</b>	
shock resistance	T=0°C-TIR<10% conform to schedule 6 of UNI EN1452-2		UNI EN 1452-2744	
Resistance to interior pressure	No yield during the test 20°C/1h/sigma=42Mpa 20 °C / 100h / sigma= 35 MPa 60°C/1000h/sigma=12.5MPa		UNI EN 921	
Temperature of softening Vicat (VST)	≥80 °C	Conform to UNI EN 727	UNI EN 727	
Longitudinal shrinkage	≤5% the pipe must not show delimitation, blister or breakage	Testing Temperature Time of immersion For: e ≤ 8 mm > 8 mm	150°C  15min 30min	UNI EN 743  Method A: Bath liquid
		Or		
		Testing Temperature Time of immersion e ≤ 8 mm e > 8 mm	150°C 30min 60min	UNI EN 743 Method B: In air

Resistance to dichloromethane At a specified temperature	No attack in any part of the surface of the testpiece	Testing Temperature Time of immersion	150°C 30min	UNI EN 580
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## CONNECTIONS SOCKET/GASKETS

- the connections are made by means of sockets with elastomeric gasket. Gaskets have not to be toxic at all according to the present norms for this subject (sanitary discipline) and conforming to norm UNI EN 681/1.
- The system of connection has to correspond to the requirements of UNI EN 1452-5 for every single class of pressure (PN) and has to be tested according to:
  - a) EN ISO 13844 elastomeric gaskets for socket connections to be used with UPVC pipes – testing method for tightness of negative pressures;
  - b) EN ISO 13845 elastomeric gaskets for socket connections to be used with UPVC pipes – testing method for tightness of internal pressure with angular deflection of the connection.

## MINIMUM MARKING

the minimum marking on each meter of pipe must be indelible and show at least the following data:

- name of the producer and/or trademark of the product
- number of the norm of the system (UNI EN 1452)
- quality mark of the product - raw material (U-PVC)
- outside diameter of the pipes x wall thickness
- nominal pressure (PN) and SDR and/or series (s...)
- day, month, year and shift of production
- number of the extrusion line
- date of production

## GEOMETRICAL CHARACTERISTICS-DIMENSION OF PIPES

- Diameters, thickness and tolerances: pipes have to be formed (SDR) as foreseen by the National Introduction of UNI EN 1452 and have dimensions conforming to schedules 1,2,3 of Chapter 6 of UNI EN 1452-2 "geometrical characteristics".

Particularly in this discipline there is shown the prospectus including minimum wall thicknesses indicated in mm

Nominal outside diameter (MM)	Nominal Wall thicknesses (minimum) (mm)			
	PN6bar	PN10bar	PN16bar	PN20bar
20			1.5	1.9
25			1.9	2.3
32			1.6	2.4
40	1.5	1.9	3.0	3.7
50	1.6	2.4	3.7	4.6
63	2.0	3.0	4.7	5.8
75	2.3	3.6	5.6	6.8
90	2.8	4.3	6.7	8.2
110	2.7	4.2	6.6	8.1

125	3.1	4.8	7.4	9.2
140	3.5	5.4	8.3	10.3
160	4.0	6.2	9.5	11.8
180	4.4	6.9	10.7	13.3
200	4.9	7.7	11.9	14.7
225	5.5	8.6	13.4	16.6
<b>Nominaloutsidediameter</b>	<b>Nominalwallthickness(minimum)(mm)</b>			
(MM)	PN6bar	PN10bar	PN16bar	PN20bar
250	6.2	9.6	14.8	18.4
280	6.9	10.7	16.6	20.6
315	7.7	12.1	18.7	23.2
355	8.7	13.6	21.1	26.1
400	9.8	15.3	23.7	29.4
450	1.0	17.2	26.7	33.1
500	12.3	19.1	29.7	36.8
630	15.4	24.1		
710	17.4	27.2		
800	19.6	30.6		
900	22.0			
1000	24.5			

### Lengths

- pipes have to be delivered for all outside- diameters asked for in lengths of 6 meters (socket included).

### Ends of pipes

- the pipe has to have plain ends, sharply cut and must be perpendicular to the axis of the same pipe, having an outside chamfer of about 15°.

## CONTROLS AND RESPONSABILITY

- The contractor reserves the right to himself and to the person he is going to uncharged to assist the tests and controls carried out to check if the requirements prescribed by the norms of production and by these specifications are fulfilled.
- The supplier, therefore, will do his best to favor the free access of the persons uncharged by the contractor to the production plants of the pipes in a moment whatever during the different phases of production and to the laboratories during the phases of control and testing, communicating within a reasonable period of time the beginning date of production of the pipes ordered. He will further give to the persons in charge, full liberty of actions to make the controls necessary, inline with the requirements of production.
- The contractor reserves himself the right to check by means of taking samples of pipes and/or of the raw material, the correspondence of the same to the present specifications and to the supplier's declarations.
- It is understood that the presence of the persons uncharged, during the tests, will not be a substitute of the controls to be carried out by the seller, who is the only one responsible for the quality of the pipes he produces.
- The seller will bear any costs deriving from the delivery of pipes not conforming to the requirements of these specifications.

## **DOCUMENTS AND CERTIFICATIONS OF QUALITY**

- the supplier has to enclose to his offer:
- the certification of conformity of the Internal Quality System conforming to UNI EN ISO 9000, issued by an independent Institute or Company in conformity with UNI CEI EN 45012;
- a signed declaration regarding the use of virgin raw material (blend), which does not contain already worked material or substances which can damage the human body;
- a certificate of conformity of the product to norm UNI EN 1452 for pipes, issued by an independent Institute, Body or Company, in conformity with UNI CEI EN 45011.

## **AFTER SALES ASSISTANCE**

- If agreed upon, when the order had been made, the supplier has to guarantee as follows:
  - assistance by means of qualified technicians at the begin of work within the building yard in order to check the correct way of installation (recommendations according to UNI EN 1452-6 and ENV 1046).
  - Assistance of competent personnel regarding the procedures of testing the laying within the building yard (in case of water conducts, foreseen by the law according to the Ministerial Decree DM 12.12.85) of buried pipe-lines for fluids under pressure (execution according to method UNI EN 805, hydraulic test of conducts with a viscoelastic behavior).

## **HANDLING AND TRANSPORT OF MATERIALS**

- For the handling and transport of the pipes there have to be adopted all those procedures which are done so that the same reach at destination completely integral. A possible deterioration of the pipes, ascertained on delivery of the same, will turn out into a claim of defect material. The pieces claimed will remain at the disposal of the supplier. Possible repairing or controls will be at the supplier's charge. As for loading, transport, unloading and storing of the pipes and special pieces, reference will be made to the prescription of the Ministerial Decree (D. M.) 12.12.1985 (and successive modifications and integration).

## **TRANSPORT OF PIPES**

- When transporting pipes, the loading surface must not be rough. It is necessary to support pipes for their whole length, thus avoiding the possibility that pipes get damaged due to vibration. In order to fix the load, straps of hemp, nylon or similar material can be used, taking care that the pipes will not get damaged.

## **LOADING; UNLOADING AND HANDLING**

- if loading and unloading of a means of transport or, anyway the handling of the material is done by means of a crane or the arm of an excavator, pipes have to be lifted in the center by an equalizing rocker arm of at least 3 meters. If these works are done by hand, it has to be avoided to slide pipes onto the side boards of the means of transport or, anyway, on hard and sharp objects. The person in charge of the building site has to check all working processes of unloading in order to be sure of their regularity.

Each damaged product will be identified by writing "not to be used" and will be isolated in an extra area. The person in charge has to communicate as soon as possible, the existence of a damaged product to the Contractor's Director of Work, who then will take the actions necessary, according to his unobjectionable opinion. If a crane is used, there has to be an efficient system of communication between the worker inside the crane and the worker beside the means of transport.

### STORING OF PIPES

- the best solution for the storage of pipes would be to use wooden crates or crates of other materials, to be able to resist to the weight of the pallet put on top. The storage has to be carried out with great care and the pallets have to be aligned. The supporting surface of the pallets stored has to be levelled, not to be rough and must not have stones with sharp edges. Every possible idoneous solution has to be adopted in order to avoid any interference with the local traffic, both vehicles and pedestrians, and with any other already existing structure. The pipes have to be stored in a way to avoid possible accidents due to an unforeseen movement of the same.

### CONSERVATION OF THE MATERIALS

- It is absolutely necessary to adopt measures, that in case of long term storage, pipes of UPVC and plastic fittings can be put inside, away from sun-rays, in order to avoid the risk of degradation of the polymers and the decay of their chemical, physical, and mechanical properties. Fittings may be packed in indifferent ways according to their shape, dimensions and type of transport. If they are delivered without packaging, it has to be taken care not to pile them up without method, thus avoiding a collision between the single pieces or between the fittings and other heavier materials. In any case they cannot be put near heating devices or exposed to direct sun-rays until they are used. Similar indications have to be followed for the conservation of lubricants.

### MODALITY AND PROCEDURES OF LAYING IN SITE

- Typologies of trenches: The type of trench required by the project based on the evaluation of loads, the type of soil and the organization of the building yard, has to be scrupulously carried out in the next phase of execution. During the phase of execution it is therefore important to have a scrupulous correspondence between the project and its effective realization. In the table below there are some main typologies of trenches showing the relationship between the diameter of the pipes ( $D$  indicated in meters), the width of the trench at the level of the upper part of pipe ( $B$  in meters) and the height of filling on the upper part of the pipes ( $H$  in meters).

Type of Trench	B (width of the trench)	H (height of filling)
Small Trench	$\leq 3D$	$< H/2$
Large Trench	$3 < D$	$< 10 < H/2$
Embankment	$\geq 10D$	$\geq H/2$

#### Small Trench

- this is the best way to lay a U-PVC pipes. The pipe does not have to bear all the load from above, as it transmits part of it to the surrounding soil depending on the deformation due to the deflection, the product is submitted to.

### **Large Trench**

- the load the pipe has to bear will be more than the one it has to support in a small trench. For this reason this has to be considered during the planning. This hypothesis has to be born in mind in order to obtain a certain security when making the calculations of the dimensions.

### **Embankment (positive position)**

- the upper part of the pipe is put on a natural level of the soil. If there is much load passing through, this typology has not to be adopted due to sinking of the soil in absence of excavations on the sides.

### **Terra pieno (negative position)**

- The pipe is put at a lower level than the natural one of the soil. Due to friction, even if a very light one, between the filling material put on the embankment and the natural sides of the trench, the pipes can support slightly more load than those in the positive position, but in any case less than those laid in a small and large trench. Therefore, even this typology is not advisable.

### **Depth of the trench**

- The depth of the pipes  $H$  (in meters) understood as distance between the soil and the upper part of the pipes must satisfy the most protective of the following requirements, where  $D$  is the outside diameter expressed in meters.

$$H \geq 1,0$$

$$H \geq 1,5D$$

### **Width of the trench**

- This is determined by the laying depth and by the diameter of the pipe, as it has to allow the settlement of the bottom, the connection of the pipes and the movement of the workers. The minimum width of the soil  $B$  (in meters) is normally:

$$B = D + 0,5 \text{ with } D \leq 0,4 \text{ m} \quad B =$$

$$2D \text{ with } D \geq 0,5 \text{ m.}$$

- On the other side, the inferior limit values have not to be exceeded very much as the efficiency of the trench is higher when the width is smaller.

### **Bottom of the trench**

- The trenches have to be made without bumps or unevenness in order to establish a continuous support for the pipes. It is not advisable to use a bottom with a concrete bed or similar as this will make the structure rigid.
- When the trenches are open on heterogeneous soil, situated on hills or in the mountains, it is necessary to anchor in order to avoid possible sliding of the soil.
- If there might be an instability of the soil due to water within the trench, it is necessary to re-inforce the soil bottom by means of draining pipes under the canalization.
- Around these pipes has to be put a compact strata of gravel or other material suitable to this purpose.

- In other words, it is necessary to make sure that there won't be any possibility that the filling material could move due to ground water.

### Laying Bed

- There has to be a stable laying bed on an even level, for canalization of U-PVC pipes. It has to be free from pebbles, heap of stones and possible other materials. The laying bed must not be built before having a complete stabilization of the trench bottom. The material used in normal laying conditions is sand mixed with gravel of a maximum diameter of 20 mm. If the soil has slopes, it is advisable to avoid sand, giving preference to gravel or crushed stones without edges, cut to pieces of maximum 10/15 mm. The material has then to be accurately compacted and has to achieve a thickness of minimum  $(10 + 1/10 D)$  cm.

### Norms of compacting and quality control

- As U-PVC pipes are flexible, the uniformity of the surrounding soil is basically for a correct construction of a carrying structure, because the soil, deformed by the pipes, reacts in a way to give a help in supporting the load. In order to assure stability and integrity of the pipes laid, within the time, it is pointed out that the contractor has to take a great care regarding the laying of the pipe bed, the support and the first covering of U-PVC and has to apply scrupulously the present norms.
- The degree of compacting of the material, which forms the supports, has a determining influence on the value of diametric deformations ( $x/D$ ) of the pipes. This value, which must not exceed the limits permitted, can be deduced by the formula of Spangler,

$$X = 0,125 \cdot Q$$

$$A. (s/D)^3 + 0,0915 \cdot E1$$

with:

Q = total external load on the pipe [kg/m];  
 E = modulus of elasticity of the pipe [kg/m<sup>2</sup>]; s  
 = thickness of the pipe [m];  
 D = diameter of the pipe [m];  
 E1 = modulus of elasticity of the soil [kg/m<sup>2</sup>].

Particularly E1 depends on the factor of compacting  $a'$  according to the relation:

$$E1 = 9,104 \cdot (H+4) \cdot a$$

where H [m] is the height of filling measured from the upper side of the pipe.

Furthermore  $a'$  is connected to the Proctor index as indicated in the following table:

Proctor Test	$a'$
95%	1,0
90%	1,5
85%	1,5 <sup>2</sup>
80%	1,5 <sup>3</sup>
75%	1,5 <sup>4</sup>

- The Proctor index defines normally the degree of compacting of the soil. For U-PVC pipes a Proctor index of at least 90% has to be considered. The achievement of the value required for the Proctor index has to be verified by means of appropriate tests and respective certifications, the number of which is fixed during the planning.
- The above-mentioned tests, defined as tests of compaction and determination of the characteristics of density of materials, must be carried out with the standard method AASHTO with 4 points of the curve density/content of water. In order to obtain the density required method of compacting are used (by hand with flat presses or with light mechanical apparatus).

#### Laying of the pipe

- before laying the pipes, they have to be checked one by one in order to discover possible defects; the end part and the socket of the pipes have to be integral. The pipes and fittings must be put on the laying bed in a way to have a continuous contact with the bed.
- Theniches, excavated before, for the accommodation of the sockets (even if the dimension of the socket is minimum, it is normal to find a niche in correspondence of fit support), if necessary, have to be accurately filled in order to avoid possible empty spaces under the sockets.

#### Procedure of filling

- The filling of a trench and generally of the excavation, is fundamental for the laying. As we are dealing with UPVC pipes, the uniformity of the soil is absolutely necessary in order to have a perfect construction of the carrying structure, as the soil reacts in a way, giving a contribution to support the given load. The material already used for the construction of the bed is put around the pipe and solidated by hand in order to form successive strata of 20 cm up to half height of the pipe. It has to be taken care that there won't remain any empty spaces under the pipes and that the strata L1 of the filling material between the pipe and the wall will be continuous and compact.
- The second strata of filling L2, reaches the upper part of the pipe. Its compactness has to be carried out with maximum care. The third strata L3 reaches 15 cm over the upper part of the pipe. Compactness has to be only at the sides of the pipes, never vertically on the same.
- The solidation of filling around the pipe must be uniform and reach 90% of the optimal value determined by the modified Proctor test. The support with turfy, muddy, clayly, or frozen soil is not allowed as this kind of soil cannot be solidated as it contains too much water.
- Further filling is made (strata L4 and L5) by material obtained from excavation. This material is cleaned from elements having a bigger diameter than 10 cm and from vegetal and animal fragments. The filling has to be made for the following strata up to 20 cm. It has to be compacted and eventually watered for a thickness of 1 m (measured from the upper part of the pipe), so that the density of the soil, once solidated, reaches 90% of the optimal value determined by the modified Proctor test. The bigger material (stones of a diameter > 2 cm) must not exceed the limit of 30%. At last there has to be a free space for the last strata of vegetal soil.

#### Special laying conditions



- If there is a ground water table, it has to be ascertained that this table does not cause any movement of the filling material surrounding the pipe. The surrounding soil has therefore to be solidated by means of draining, operating under the level of excavation, and thus avoiding every possible instability of the laying soil and brickworks.
- If during the work, for limited distances, there will appear some harder laying conditions than those foreseen by the project (enlargements of walls, landslides etc) works of protection have to be carried out in order to come back to laying conditions as described. There must be extra-walls or heaps of stones or concrete in order to reduce the length of the section of excavation or there must be adopted other solutions authorized by the Direction of Work.
- In case, for technical reasons the height H of recovering is in some points lower than the minimum prescribed, it is necessary to absorb vertical loads by using appropriate protection devices (rigid diaphragms of protection and distribution of the loads, to be put above the last compact strata of material), following the input of the Direction of Work.
- In case of crossing railways, it is possible to:
  - Forsee a steel covered protective pipe (casing)
  - Lay pipe in a tunnel of reinforced concrete

### **ESECUTIONS OF CONNECTIONS**

- Connections are made, respecting the indications given in the following, both for pipes and special pieces. An accurate cleaning of the parts to be joint is for seen making sure that they are integral. The gasket has to be inserted (if not already inserted during production) in its seat, situated in the internal side of the socket. Successive steps are:
  - Lubrification of the external surface of the end of the pipe (plain ended side of the pipe) and the internal surface of the socket, using an appropriate lubricant (grease or silicone-oil, Vaseline, soapy water, etc.) Avoid the use of mineral oils or greases which may damage the gasket.
  - Insert the head of the pipe until the end of the socket and do not force further. The perfect execution of this working process depends only on a precise alignment of the pipes and on an accurate lubrication.

#### **Item No. 32 to 37:**

**Providing and fixing uPVC fittings viz. coupler bend, elba, tee, etc. of Schedule-40 of any approved brand and quality -200 mm / 100 mm / 63 mm / 40 mm 25 mm / 15 mm**

The contractor shall have to supply UPVC fittings viz. Bends, tees, coupler, etc. of required dia size as per the requirement and of approved quality by the engineer in charge. Subsequently the fixing of these shall have to be carried out with all required material etc. and complete the whole work as per the requirement and to the satisfaction of engineer in charge.

The rates shall be for a unit of One number basis.

#### **Item No. 38:**

**Fixing of Gunmetal fullway wheel valve etc. 25mm dia:**

The ISI Marked Gunmetal fullway wheel valve of 25mm dia shall have to be fitted as per instructions of engineer-in-charge.

The rate for this work will be paid per number basis.

**Item No. 39 to 44:****Providing and fixing GI fittings if ISI:1239 viz. coupler bend, reducers, elba, tee, etc. of approved brand and quality**

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The contractor shall have to supply GI fittings viz. Bends, tees, coupler, reducer, etc. of required dia size as per the requirement and of approved quality by the engineer in charge. Subsequently the fixing of the same shall have to be carried out with all required material etc. and complete the whole work as per the requirement and to the satisfaction of engineer in charge.

The rate shall be for a unit of one number basis.

**Item No. 45:****Providing and fixing Overhead Water Tanks "Sintex" or equivalent of 1000 Liters capacity with all necessary plumbing fitting etc. comp. as directed by Engineer-in-charge.****MATERIALS AND WORKMANSHIP:**

Overhead water tanks "Sintex" or equivalent of cylindrical vertical tanks with closed top with of self-supported type having approved grade of polyethylene, molded to seamless and suitable for potable water tank of capacity as mentioned in Schedule-B as per company's dimensions provided with G.I. fittings of size 25mm Dia for inlet, outlet, overflow and scour connections and float valves etc. complete placed with all fittings fixing as directed by engineer in charge.

The rate for this work will be paid per number basis.

**Addl/Asst.Engineer  
R.M.C.**

**Dy.Ex.Engineer  
R.M.C.**

**CITY ENGINEER(SPL)  
R.M.C.**

**Signature of Contractor with Seal**

<u>LIST OF APPROVED MAKE (Civil Work)</u>					
NO.	SPACE	PARTICULAR	COMP		
1	Ready mixed Concrete		Lafarge/Bhanu/ultratech/RJ/Krishna		
2	Ordinary Portland Cement (Minimum 53 Grade)		UltraTech/Birla/ACC/Ambuja/Hathi/Sanghi		
3	Flush doors		BIS approved brand (ISI Mark)		
4	FRP Doors		Fibrevent, Technoskills or Equivalent (or as approved by Engineer in Charge)		
5	PVC Doors with Frame		ISI and approved by Engineer in Charge		
6	Hydraulic floor Spring/Door		Everite, Garnish, Hardwyn		
7	White Cement		JK White	Birla White	Nihon White
8	Reinforcement/Structural Steel (Each LOT shall accompany manufacturer's Test Certificate)		(TMT BARS Fe-500) Gallent/ET/ASR/Friend or BIS approved manufacturers		
9	Dining, Drawing, Bed Room, Kitchen, Toilet/Bath/Wash etc,	Vitrified/Ceramic/Glaze Tiles/Wall Tiles/Parking Floor Tiles	Somani/Nitco/Kajaria/RAK/Jhonson/Simpolo/Bell/Asian/Euro/Vermora		
10	Toilet/Bath/Wash	PVC/UPVC pipes & Fittings	Astral/Supreme/Prince/finolex /Simco/Plumber With Clamp open type of outer side of Building		
11		Sanitary ware	Jaquar/cera/Hindware/Jhonson and any other standard brand as approved by engineer-in-charge		
12	Teak Wood		Bulsar	C.P. Teak	
13	Interlocking Paver blocks		ISI Mark – Balaji, Regency, Supreme		
14	Plywood Products Commercial Block Board Commercial Ply Teak Ply		ISI Mark as approved by engineer-in-charge		
15	Glass/Float/Sheet		Saint Gobain	Modi/HNG	Asahi
16		Laminates	Neolux/Formica/Sunmica/Merino or as per ISI		
17	Aluminum sections		Jindal	Indal	Banco

- A) The contractor shall produce samples of the materials for approval of the RMC/PMC. The material of the make out of the above as approved by the RMC/PMC shall be used on the work. RMC/PMC member has not bid to give any reason for rejection of any brand from the above list and its decision will be considered as final.

- B) In respect of materials for which approved makes are not specified above, these will be of make 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.

The agency has to use item/material mentioned in the list above. In no case other item/material shall be allowed except those mentioned in the list unless and until the unavailability of the above said item/material noticed that too, prior approved of RMC/PMC

**D. ADDITIONALCONDITIONS**

#### **D. ADDITIONAL CONDITIONS:**

1. The contractor shall have to provide his own level instrument for this work.
2. 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.
3. 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.
4. 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 these 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 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 arrangement of passage of traffic, access to premises and continuance of drainage, water supply and lighting (if interrupted by the work) and temporary sheds and buildings and a hais 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 herein are to be supplied by the contractors. A rate for any one 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.

5. The contractors are particularly directed to observe from the Articles of Agreement and the specifications, what is to be included in their rates for these several portions of the work and also under what conditions payments are to be made.
6. 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 be binding to the contractor. The required documents shall have to be submitted every month by the contractor to the competent authority.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.

12. 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 extra 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.
13. 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.
14. 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, equipments, 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.
15. 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.
16. If any irregularities found during the work then penalty will be imposed by Engineer-in-charge or any higher officer. If any dispute arises regarding penalty imposed by Engineer-in-charge then the decision of Municipal Commissioner will be final and binding to the agency.
17. The time limit will remain same as mentioned in the tender document and the work is to be completed accordingly.
18. 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 latter shall govern the process of bid evaluation.
19. The agency shall have to quote their rates only after visiting the site and looking to the site conditions.
20. 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.

21. Joint ventures shall not be allowed under this tender.
22. 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 the 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.
23. The Royalty of each and every material, required to be paid is to be borne by the contractor.
24. 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 IS Code provision.
25. Necessary tests for material quality, soil test etc. shall be carried out as per the instructions of engineer-in-charge by contractor at his own cost and report to be submitted to the engineer-in-charge.
26. 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 these 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.
27. 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.
28. 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.

29. Defective Materials: All materials which the Engineer/his representative has determined as not conforming 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.
30. The Defect Liability period for this work is 24 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 inspections shall have to be repaired/rectified and necessary evidence along with photographs shall also have to be submitted to the competent authority.
31. 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.
32. The structure design to be prepared by the agency through RMC approved Structural Engineer, the cost of which also is to be borne by the agency.
33. The work order will be given only after getting the preliminary approval from Town Planning Department.
34. Providing and fixing of precast RCC slab and column shall have to be carried out in line and level.
35. For excavation of trench, use of JCB machine will not be permitted directly on the top surface of the road. After excavation up to a 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.
36. 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 place 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.

37. 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.
38. 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 excavations shall be paid as per the rate of related item mentioned in Schedule-B.
39. 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 than 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.
40. 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/suppliers 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).

41. For this project works Third Party Inspection (TPI) is mandatory. The TPI Agency will be appointed by Rajkot Municipal Corporation and remittance of charges @ 0.70% of contract value for the same is to be borne by the agency, which will be deducted from the contractor's bill.
42. 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.
43. 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.
44. 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, registers shall be maintained on site with the details of cut length of bar. The certificate for same shall be noted in Pour Card.
45. 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 cubemould 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.
46. The Mix Design of Cement Concrete shall be revised submitted with respect to changes in Materials like Cement, Sand, Aggregate
47. 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.

48. After the drawings for the proposed work are finalized by RMC, the agency has to submit the same to qualified & experienced structure engineer.
49. The agency has to submit the approved & signed copier of structure design set to Rajkot Municipal Corporation
50. 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.
51. Additional alternation changes during the work shall have to be incorporated in the structure drawing & shall be re submitted to Rajkot Municipal Corporation accordingly.
52. The contracting Agency then has to prepare bar bending schedule, submit it to Rajkot Municipal Corporation. & After checking the bar bending schedule, then Rajkot Municipal Corporation shall permit to work to start.
53. 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.
54. 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.
55. 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 far ming 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.
56. 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.

57. 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.
58. 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.
59. 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.
60. 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 sites specified by engineer-in-charge.

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.CITYENGINEER  
RajkotMunicipalCorporation**

**Signature of Contractor with Seal**

**RajkotMunicipalCorporation**

**::SPECIALCONDITIONS ::**

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 IS 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. 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 report to be submitted to the engineer-in-charge.
5. 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.
6. The testing of metal and the design as per IRC shall have to be carried out by the contractor at his own cost.
7. Structured design is to be prepared by contractor and after approval of engineer-in-charge the work can be started.

**ADDL.CITYENGINEER  
RajkotMunicipalCorporation**

**Signature of Contractor with Seal**

**PART-III**  
**BILLOFQUANTITIES**  
**(AttachedinSeparateFolder)**



**BIDFORM(WITHPRICE)**

**CONTRACT No:**RMC/ENGG/CZ/23-24/24

Bidders are required to fill up all blank spaces in this Bid Form The Commissioner

ioner  
Rajkot Municipal Corporation  
Dr. Ambedkar Bhavan  
Debar Road  
Rajkot Debar

Dear Sir,

**SUB: CONSTRUCTION OF BOX CRICKET AT RACE COURSE (RE-TENDER)**

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 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 **90 Days** 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 180 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 form 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 amount 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 \_\_\_\_\_ 20\_\_\_\_.

\_\_\_\_\_  
(Signature)

Company Seal

\_\_\_\_\_  
(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 TOP PRICE  
SCHEDULES

## Note on Schedule:

The bid is percentage rate bid for CONSTRUCTION OF BOX CRICKET AT RACECOURSE (RE-TENDER)

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 Bid 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, bidders 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 bidders 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 the 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 bidders shall interpret the data furnished and carry out any additional survey work, or investigativework 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. 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.
15. The whole work is to be done under the supervision of RMC.
16. 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 Bid will be disqualified.
17. It will be entirely at the discretion of the Employer to accept or reject the bidder's proposal, without giving any reasons whatsoever.
18. In Price Schedule, bidders 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.
19. Only Price Schedule will be considered for financial evaluation of the bid with the successful bidder.
20. 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.
21. Prices quoted by the bidder shall be firm for the entire period of Contract without any escalation.
22. The bidders shall interpret the data furnished and carry out any additional survey work, or investigation work required at his own cost.

23. The prices quoted shall also include the cost of materials utilized for testing.
24. 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.
25. From each Running Account Bill, labour cess will be deducted as per norms.
26. In every running bill 0.25% amount shall be retained as extra security deposit if drawings of work done are not submitted by agency.
27. The quoted rates should be inclusive of all taxes and duties.
28. 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.
29. The work contract tax will be borne by the agency.
30. 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.
31. Use of ready mix concrete may be permitted if it fulfils tenders specifications.
32. No extra item or extra width will be paid due to excavating method or type of machinery.
33. For any type of license regarding labour, etc. has to be achieved by agency.
34. 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.
35. 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

36. 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 upto maximum 5% amount of concerned R.A. Bill amount.
37. 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.CITYENGINEER**  
**RajkotMunicipalCorporation**

**Signature of Contractor with Seal**



<b>CheckListforsubmissionofDocuments</b>	
TenderFeesubmittedasperTender	Yes/No
Tender Earnest Money DepositsubmittedasperTender	Yes/No
Registrationdocumentssubmittedaspertenderrequirement	Yes/No
<b>FinancialDetails:</b>	
Turnoverdetailssubmittedasperrequirement	Yes/No
WorkingCapitalasperrequirement of tender issubmitted	Yes/No
ValidBankSolvencysubmitted	Yes/No
ValidityofBankSolvency	Date:
<b>ExperienceDetails:</b>	
DetailsofTechnicalStaffanddetailsofmachineriessubmitted	Yes/No
Addressproofsubmitted	Yes/No
Identityproofsubmitted	Yes/No
FreshDeclarationonNon-JudicialStampPaperregardingnotblacklistedorTerminate dorDebarred,issubmitted	Yes/No
ProfessionalTaxReceiptofcurrentyear	Yes/No

**Note:**

**Overandabove, theagencyshallalsohavetosubmitallothernecessarydocuments as mayberequiredforpre-qualification, failingwhich, theagencywill betreatedasNon-responsiveandwillbeDISQUALIFIEDandalsotheonlinepricebidofsuchagencywillnotbeopened.**

SignatureofContractorwithseal

# PRICESCHEDULE

**RajkotMunicipalCorporationP  
riceSchedule-B**

**Nameofwork:CONSTRUCTIONOF BOX CRICKET AT RACECOURSE (RE-TENDER)**

Item No.	Quantity	Description of Item	Rate	Unit	Amount
1	755.00	Excavation of Foundation in Soft Murrum, Soil or Sand from 0.0 mtr. to 1.50 mtr depth including lifting and laying in 90 mtr. lead area as instructed	133	cumt	100415.00
2	50.00	Supply & Laying of Hard Murrum	294.0	cumt	14700.00
3	22.10	RCC work 1:2:4 for coping using aggregate of size 10-20 mm, centring, curing, finishing etc. complete (without reinforcement)	4944.00	cumt	109262.40
4	1.80	RCC work 1:1.5:3 for RCC slab using aggregate of size 10-20 mm, centring, curing, finishing etc. complete (without reinforcement)	6083.00	cumt	10949.40
5	47.00	Brick Masonry work in Cement:Mortar 1:6	5761.00	cumt	270767.00
6	280.00	20mm thick Sand Face Cement Plaster Work in which 1 paster in proportion of 1:3 and 2nd plaster inteh proportion of 1:2 using Cement:Mortar with spong finishing etc. complete (Note: Before carringout Plaster work on RCC, required tipping work should be carried out as instructed)	263.00	sqmt	73640.00
7	70.00	Cement Plaster 12 mm thick using Cement:Mortar in proportion 1:3 with Niru Finishing curing, etc. complete	223.00	sqmt	15610.00
8	70.00	Birla or JK putti work on rough plaster (three times) with labour and material	82.00	sqmt	5740.00
9	70.00	Plastic Imulsion Paint (Two coats) (Asian Paint, ICI, Dulux, Nerolac, Berger etc. of approved type) (with Prime Coat)	145.00	sqmt	10150.00
10	200.00	Apex Color work on Outer side of Wall (Two coats) (without Base Coat)	92.00	sqmt	18400.00
11	7.50	supply and fixing of vitrified tiles flooring work of size more than 0.60 x 0.60 mtr (1st quality)	1082.00	sqmt	8115.00

Item No.	Quantity	Description of Item	Rate	Unit	Amount
12	20.50	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	493.00	sqmt	10106.50
13	1.00	Uropean type w/c with sit, cover fixing with comp. standard quality.	1784.00	Nos	1784.00
14	1.00	White porselin wash bassin 560/410mm indian make c.i. bracket with fitting cromium platted topes 25cm plastic waste pipe and 12mm pillar cock with comp.	1434.00	Nos	1434.00
15	4.30	Providing & fixing FRP door.	4200.00	sqmt	18060.00
16	1.50	aluminium section window work (with 3 track mosquito net ) (jindal)(with necessary all fittings)	7061.00	sqmt	10591.50
17	13.00	Supply, Fixing & Polishing of Kota Stone work thickness 20-25 mm to be fixed in Lime:Mortar 1:2 and liquid Cement and as instructed	913.00	sqmt	11869.00
18	1350.00	Supplying, Cutting, Beding, Binding and Hooking and binding with wire for RCC work Tor steel TMT round bar including all cost	65.00	kg	87750.00
19	95.00	Supply & Laying of Machine crushed agregate of size 25-38 mm	916.00	cumt	87020.00
20	900.00	Supply & Fixing of 80mm M-30 Grade cement concrete rubber mold paving inter locking paving block (Grey colour) after beding of black stone powder in line and CC on the edge in proportion of 1:2:4 with curing etc. complete	500.00	sqmt	450000.00
21	415.00	Supply and laying garden black soil	442.00	cumt	183430.00
22	140.00	Supply and laying Red soil	1160.00	cumt	162400.00
23	14800.00	selection -1 grass supply as required cricket ground and instructed and selected by engineer incharge	39.00	sqft	577200.00
24	1375.00	Plantation of lawn, tree, flower bed etc in field area	20.00	sqmt	27500.00
25	3000.00	Iron work as per drawing and instruction including all	109.00	kg	327000.00
26	2400.00	Hockey Practice Net 2.4 mm thick braided thread 1.75 Inches Blocks with aal GST Stansportation Etc. Complete	67.58	sqmt	162192.00
27	33.00	supply and fixing 13mm to 15mm Synthetic cricket pitch turf	3228.00	sqmt	106524.00

Item No.	Quantity	Description of Item	Rate	Unit	Amount
28	700.00	Fixing of CC Precast Road Divider stone 0.38 x 0.30 x 0.20 cm including required material and labour (without colour)	134.00	Nos	93800.00
29	180.00	Painting of Traffic Strip Footpath / Circle & divider block size 0.38x 0.30 x 0.30 in two coats using enamel paint in different colors	54.00	RMT	9720.00
30	160.00	uPVC pipes of Shedule-80 of any standard approved brand & quality-25MM	92.91	RMT	14865.60
31	30.00	uPVC pipes of Shedule-80 of any standard approved brand & quality-20mm	63.84	RMT	1915.20
32	20.00	uPVC coupler for pipes of Shedule-80 of any standard approved brand & quality-25 mm	10.26	Nos	205.20
33	5.00	uPVC coupler for pipes of Shedule-80 of any standard approved brand & quality-20 mm	6.55	Nos	32.75
34	5.00	uPVC Bend of 90° Shedule-80 of ASTRAL, WATER FLO, FINOLEX, ASHIRVAD, POLYSIL Orany standard approved brand & quality-25mm	17.67	Nos	88.35
35	5.00	uPVC Bend of 90° Shedule-80 of ASTRAL, WATER FLO, FINOLEX, ASHIRVAD, POLYSIL Orany standard approved brand & quality-20mm	11.40	Nos	57.00
36	5.00	uPVC Tee of Shedule-80 of any standard approved brand & quality-25mm	22.51	Nos	112.55
37	5.00	uPVC Tee of Shedule-80 of any standard approved brand & quality-20mm	13.39	Nos	66.95
38	6.00	Gunmetal full way valve with ISI- 778 mark Of any ISI mark Approved brand.- 25mm	833.20	Nos	4999.20
39	10.00	GI Reducing TEE with ISI-1239 mark for ISI marked GI pipe-25mm	44.07	Nos	440.70
40	5.00	GI Reducing TEE with ISI-1239 mark for ISI marked GI pipe-20mm	30.77	Nos	153.85
41	10.00	GI BEND with inside threaded with ISI-1239 mark for ISI marked GI pipe-25mm	40.21	Nos	402.10
42	10.00	GI BEND with inside threaded with ISI-1239 mark for ISI marked GI pipe-20mm	26.34	Nos	263.40
43	10.00	GI NIPPLE with ISI-1239 mark for ISI marked GI pipe-25mm	50.40	Nos	504.00
44	10.00	GI NIPPLE with ISI-1239 mark for ISI marked GI pipe-20mm	35.70	Nos	357.00

Item No.	Quantity	Description of Item	Rate	Unit	Amount
45	1.00	Water Storage Tank of HDPE material cylindrical Vertical Black with closed Top 'SINTEX' Brand. (1000 Liter Capacity).	13396.00	Nos	13396.00
				Total	<b>3003989.65</b>
			Add GST on 18%		540718.14
			Grand Total		3544707.79
			Say		3545000.00

**Addl/Asst.Engineer**  
**R.M.C.**

**Dy.Ex.Engineer**  
**R.M.C.**

**ADDL.CITYENGINEER**  
**R.M.C.**

I/We agree to carry out the abovesaidwork at (to be  
quotedonline)%Equal/ above/  
thetenderedratesshowninSchedule. belowon

**SignatureofContractorwithSeal**



## રાજકોટ મહાનગરપાલિકા

ડો. આંબેડકર ભવન, ઢેબરભાઈ રોડ, રાજકોટ - ૩૬૦ ૦૦૧.

વેબસાઈટ : www.rmc.gov.in

આર.એમ.સી./સી./વીજી.(ટેક.)/જા. નં. - ૨૩૦૯

તા. ૧૧/૦૩/૨૦૨૨

### પરીપત્ર:-

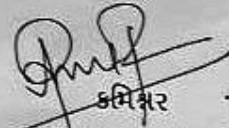
રાજકોટ મહાનગરપાલિકા અને RSCDL ખાતે ટેન્ડરથી થતા કામમાં સિમેન્ટ કોન્ક્રીટની કામગીરી કરવામાં આવે છે. આ કામોમાં ક્વોલીટી કન્ટ્રોલ જાળવાઈ રહે તે માટે નીચે દર્શાવેલ દર્શાવ્યા મુજબ જુદા જુદા સિમેન્ટ કોન્ક્રીટ ગ્રેડ વાઈઝ મીનીમમ સિમેન્ટ કન્ટેન્ટના ધોરણો અનુસરવા અને તેનો સમાવેશ ટેન્ડર ડોક્યુમેન્ટમાં કરવા આથી હુકમ કરવામાં આવે છે.

(અ)	NABL માન્ય લેબ દ્વારા IS, IRC કે MORTH મુજબ તૈયાર કરાવેલ સિમેન્ટ કોન્ક્રીટ મીક્સ ડીઝાઈન રીપોર્ટ મુજબ કિગ્રા સિમેન્ટ કન્ટેન્ટ પ્રતિ ઘનમીટર
(બ)	નીચે દર્શાવેલ ટેબલ મુજબ મીનીમમ કિગ્રા સિમેન્ટ કન્ટેન્ટ પ્રતિ ઘનમીટર

Sr. No.	Cement Concrete Grade	28 Days Strength in N/mm <sup>2</sup>	Minimum Cement in Kg
1	M-7.5 for PCC Work	7.5 N/mm <sup>2</sup>	160 Kg
2	M-10 for PCC Work	10 N/mm <sup>2</sup>	220 Kg
3	M-15 for PCC Work	15 N/mm <sup>2</sup>	290 Kg
4	M-20 for RCC Work	20 N/mm <sup>2</sup>	360 Kg
5	M-25 for RCC Work	25 N/mm <sup>2</sup>	380 Kg
6	M-30 for RCC Work	30 N/mm <sup>2</sup>	410 Kg
7	M-35 for RCC Work	35 N/mm <sup>2</sup>	425 Kg
8	M-40 for RCC Work	40 N/mm <sup>2</sup>	440 Kg
9	M-45 for RCC Work	45 N/mm <sup>2</sup>	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./ ૧૩૨

કમિશ્નર વિભાગ,  
રાજકોટ મહાનગર સેવાસદન  
તા. ૧૦/૬/૨૦૧૩

**હુકમ :-**

**વિષય:-** ઈ-ટેન્ડર / ઓપન ટેન્ડર પદ્ધતિથી મંગાવવામાં આવતી તમામ પ્રકારની ઓફરો સાથે બિનઅધિકૃત રજુ થતાં ડોક્યુમેન્ટસ સામે કડક કાર્યવાહી હાથ ધરવા બાબત.

**સંદર્ભ :-** આ અગાઉનાં પરીપત્ર નં. આર.એમ.સી./સી./૩૨૯, તા.૨૨/૧૨/૨૦૧૨.

રાજકોટ મહાનગર સેવાસદનના નણા જોગનાં તમામ વોર્ડમાં શહેરનાં વિકાસ તથા જાળવણી માટે વિવિધ કામગીરી કરાવવા ઈ-ટેન્ડર / ઓપન ટેન્ડર પદ્ધતિથી 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 કરવામાં થતાં તમામ ડોક્યુમેન્ટસ ફરજિયાતપણે ખરી નકલમાં અથવા સેલ્ફ એટેસ્ટેડ રજુ કરવા આદેશ કરવામાં આવેલ છે, જે સંબંધે 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 ડોક્યુમેન્ટસ કે તે પૈકી કોઈપણ એક ડોક્યુમેન્ટસ 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 ફરજિયાતપણે કરવાનું રહેશે.

જે ટેન્ડર ખરી નકલ કે સેલ્ફ એટેસ્ટેડ સાથે રજુ થયેલ નથી, તેવું ટેકનીકલ બીડનાં 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 ડોક્યુમેન્ટસની મુળ (ઓરીજીનલ) નકલ મંગાવી તેની ખરી નકલની ચકાસણી ફરજિયાતપણે સંબંધીત ડી.ઈ.ઈ.શ્રી તથા મ.ઈ.શ્રી / અ.મ.ઈ.શ્રીએ કરવાની રહેશે. જે મુળ નકલ સાથે વેરીફાય કર્યાની સહી ફરજિયાતપણે 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 નહીં, જેમાં ફરજિયાત 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 ફોલ ડોક્યુમેન્ટસ રજુ કરી કામ ખેળવવા માટે પ્રયાસ કર્યાનું સાબિત થશે, તેવા કિસ્સામાં બીડર / એજન્સીને બ્લેકલીસ્ટ કરી, આવા બીડર સામે ફરજિયાતપણે ફોજદારી કાર્યવાહી સંબંધીત શાખાના વડા તથા વીજીલન્સ અધિકારીશ્રી (પ્રોટેક્શન) દ્વારા જોઈન્ટલી દિન-૭ માં કરવા આદેશ કરવામાં આવે છે, જેની લેખિતમાં



જાણ તાત્કાલીક અંગે કરવાની રહેશે, જેમાં ચૂક થયેથી સંબંધીત તમામ અધિકારીઓ / કર્મચારીઓ સામે કડક પગલાં લેવા ફરજ પડશે.

- (૪) સંદર્ભનાં પરીપત્ર તથા આ હુકમ તમામ પ્રકારનાં ટેકનીકલ કામના દરેક ટેન્ડર પ્રસિધ્ધ કરતી વખતે ટેન્ડરનો ક્લિયર ગણી ટેન્ડરના ભાગ તરીકે પ્રસિધ્ધ કરવાનું ફરજિયાત રહેશે, તથા ખીડર દ્વારા ટેન્ડરમાં પ્રસિધ્ધ થતાં સંદર્ભનાં પરીપત્ર તથા આ હુકમનાં દરેક પાને સહી ચિકકા સાથે ભરેલ ટેન્ડરની ટેકનીકલ ખીડ ફરજિયાત રજુ કરવાની રહેશે.

ઉપરોક્ત હુકમનો તાત્કાલીક અસરથી ચુસ્તપણે અમલ કરવા આદેશ કરવામાં આવે છે.

  
કમિશ્નરશ્રીઓ

રાજકોટ મહાનગર સેવાસંઘ

નકલ રવાના (જાણ અર્થે):-  
નાયબ કમિશ્નરશ્રીઓ (તમામ)

નકલ જાણ તથા અમલવારી અર્થે :-  
(૧) સહાયક કમિશ્નરશ્રીઓ (તમામ)  
(૨) શાખાધિકારીશ્રીઓ (તમામ)

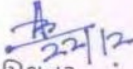
આર.એમ.સી./સી. ૩૨૪

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 રજુ કરવામાં આવતા નથી. આથી હવે પછીથી એજન્સીઓ દ્વારા રજુ થતાં ટેકનીકલ બીડમાં રજુ કરવામાં આવતા ડોક્યુમેન્ટ્સ ખરી નકલમાં અથવા સેલ્ફ એટેસ્ટેડ હોવા જરૂરી છે તેમજ જે એજન્સીનું ટેન્ડર ટેકનીકલ બીડમાં ક્વોલિફાય થાય અને ખરી નકલ ગેઝેટેડ ઓફીસર મારફત પ્રમાણિત કરાવેલ ન હોય તેવા કેસમાં તેના ઓરીજીનલ ડોક્યુમેન્ટ્સ પ્રાઇસબીડ ખોલતા પહેલા ચકાસી અને ખરી નકલ રજુ 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.

  
કમિશનર

રાજકોટ મહાનગરપાલિકા

નકલ રવાના :- (જાણ અર્થે)

- નાયબ કમિશનરશ્રીઓ (તમામ)

નકલ જાણ તથા અમલવારી અર્થે :-

- સહાયક કમિશનરશ્રીઓ (તમામ)

- શાખાધિકારીશ્રીઓ (તમામ)

**જોજવારી કાર્યકીની અધિનીયમ ૧૯૭૩ (૧૯૭૪ના નં.૨) ની કલમ ૧૪૪ અન્વયે કાઢેલ ફરમ**

ગાંધીનગર જિલ્લા  
 ગાંધીનગર સબ-ડિવિઝન  
 ગાંધીનગર કચેરી  
 ગાંધીનગર, ગાંધીનગર

ક્રમાંક એસ.બી./મજુર/ગાંધીનગર/૫૬૩૬/૨૦૧૪.  
 પોલીસ કમિશનરશ્રીની કચેરી,  
 રાજકોટ શહેર, રાજકોટ.  
 તા. ૨૬/૦૪/૨૦૧૪

તાજેતરમાં રાજકોટ શહેરમાં ધરણીક થોરીના બનાવો વધતા પાંચેલ છે ભુતકાળના રાજકોટ શહેરમાં બનેલ ધરણીક થોરીના બનાવોની તપાસ કરતા તપાસમાં આવા ગુનો કરવાઈ (કેસીકેસ) પકડાયેલ છે. ત્યારે તપાસમાં આવા ગુના વાળા આરોપીઓ ગુનાના બનાવના દિવસે અગાઉ રાજકોટ શહેરમાં નવા વધતા ગણનોમાં જુદી જુદી ઔદ્યોગિક કંપનીઓમાં, કોર્પોરેશનમાં મજુરી કામ અને ટેલીફોન કંપનીઓ સ્થાન તથા ગેસ પાઇપ લાઇન માટે ખોદાતા ખાડાઓની મજુરી કામ મેળવી બચવા તેના બહાના ફેરફાર આવી રોકાણ કરી આજુબાજુની સ્થાનિક પરીસ્થિતીનુ સર્વે કરી માહિતગાર થઈ મિલકત વિસ્તરના ગુનાઓ આચરતા હોય છે. મજુરી કામના બહાના ફેરફાર આતંકવાદીઓ પણ આશરો મેળવી લેતા હોય છે જેથી શહેર જનતાની જાન-માલ (મિલકત)ની સલામતી તથા સુરક્ષા સાફ થીડા નિર્વાહમાં મુશ્કેલી જન્માય છે.

જેથી હું મોકલ ગ્રા. (પ.સ.), પોલીસ કમિશનર, રાજકોટ શહેર જોજવારી કાર્યકીની અધિનીયમ (સી.આર.પી.બી.) ૧૯૭૩ (૧૯૭૪ ના નં.૨) ની કલમ ૧૪૪ અન્વયે અમોને મળેલ સલામી કાગે આથી હું ફરમ કરુ છુ કે, રાજકોટ શહેરના પોલીસ કમિશનર વિસ્તારમાં લેવર કોન્ટ્રાક્ટર/મુકાદમનાઓએ પોતાની પાસે જે મજુર કામે રાખેલ હોય અને મજુરી કામકાજ માટે સંપર્કાય કરતા હોય તેઓએ નીચે જણાવેલ કોમ મુજબ હરેક મજુરોના અલગ-અલગ ફોર્મ ભરી ફરજિયાત પાઠે સ્થાનિક પોલીસ સ્ટેશનને જાણ કરવાની રહેશે તથા મજુરી જમાને મજુરી કામ તથા રાજકોટ શહેર છોડી જતા રહે ત્યારે લેવર કોન્ટ્રાક્ટર/મુકાદમે તે યાંચોની જાણ નામ/સરનામ સહિતની વિગત સાથે સ્થાનિક પો.સ્ટે.મા કરવાની રહેશે

૧	લેવર કોન્ટ્રાક્ટર / મુકાદમ (સંપર્કચર) નુ પૂરું નામ સરનામું	૧-
૨	મો.નં., નંબર સહિત	૨-
૩	મજુરનું નામ તથા ઉ.વ.	૩-
૪	મજુરનું કાલનું સરનામું ટેલીફોન નંબર	૪-
૫	મજુરનું પૂર્ણ વતનનું સરનામું ગામ, તાલુકો, જિલ્લો	૫-
૬	કાલની મજુરીનું સ્થાન / કંપનીનું નામ	૬-
૭	મજુરનું વતનનું સ્થાનિક પો.સ્ટે.નું નામ તથા ટેલીફોન નંબર	૭-
૮	મજુરના વતનના અગેવાનનું નામ, સરનામું, ટેલીફોન નંબર	૮-
૯	મજુર અગાઉ કોઈ પોલીસ ગુનામાં પકડાયેલ હોય તો તેની વિગત	૯-
૧૦	કયા રકમી ગુજારનો / કોન્ટ્રાક્ટરે મજુરી કામ માટે ખર્ચાને છે	૧૦-
૧૧	મજુરનું જોવામાં આવેલું આર.કી.પુર (કોટા સાથે નું)	૧૧-
૧૨	રાજકોટ શહેરમાં કઈ તારીખથી મજુરી કામ કરે છે ? અને કઈ તારીખે જવાનો છે ?	૧૨-
૧૩	રાજકોટ શહેરમાં નજીકના સંબંધી કોઈ કોચનો તેનું નામ, સરનામું	૧૩-

મજુરનો તારીખનો કોટા..... મજુરના અંગુઠાનું ચિત્રાનું.....  
 મુકાદમ/સંપર્કચર/કોન્ટ્રાક્ટરની સહી.....  
 નામ.....

આ ફરમ નં. ૦૧/૦૫/૨૦૧૪ થી તા. ૩૦/૦૬/૨૦૧૪ સુધી અમલમાં રહેશે.

આ ફરમનો ભંગ કરનાર સ્થાનિક વ્યક્તિને વ્યક્તિય ૬૦૦ સહિતનાની કલમ ૧૮૮ મુજબ શિકારને પાત્ર થશે.

ગાંધીનગર જિલ્લા પોલીસ કમિશનર  
 ગાંધીનગર, ગાંધીનગર



તમામને વ્યક્તિગત રીતે કોર્ટમાં બજવાળી કરવી શક્ય ન હોય આથી એકતરફી ફરમ કરી કુ. જાહેર જનતાની જાણ સાથે સ્થાનિક વર્તમાનપત્ર અકાશવાણી અને ટુરટર્સન ક્લબ પારકત પ્રસિધ્ધી દ્વારા તાજ પોલીસ સ્ટેશનના પોલીસ સબવેઈલર, મહત્વની પોલીસ કમિશર, આગળ પોલીસ કમિશર તથા પોલીસ કમિશર કરોડીના ગોટીસ વીકે તેમજ ફુલમની નકલ યોજાઈ પ્રસિધ્ધી કરવામાં આવશે તેમજ સહેલાઈથી જોઈ શકાય તેવી જાહેર જગ્યાઓ ઉપર ફુલમની નકલ યોજાઈ પ્રસિધ્ધી કરવામાં આવશે ગુજરાત પોલીસ કોન્ટ્રોલ ક્લબ અને ગુજરાત પોલીસ અધિકારીઓ પણ આ ફુલમની જાહેરાત કરવા અધિકૃત ગણાશે.

આજ તારીખથી એપ્રિલ-૨૦૧૪ ના રોજ આઈ સ્ટી અને સિક્કો કરી આગલ છે.



(મિલન ઝા)  
 પોલીસ કમિશર  
 રાજકોટ શહેર, રાજકોટ

નકલ રવાના-

- (૧) અર સચિવશ્રી, મુક વિભાગ, ગાંધીનગર.
- (૨) પોલીસ મહાનિદેશક અને મુખ્ય પોલીસ અધિકારીશ્રી, ગુ. રા. ગાંધીનગર
- (૩) અધિક પોલીસ મુખ ડિરેક્ટરશ્રી (ઈ.એ.) ગુ. રા. ગાંધીનગર.
- (૪) પોલીસ કમિશરશ્રી, અમદાવાદ શહેર, જાડેજા શહેર, સુરત શહેર.
- (૫) આર મુખ્ય પોલીસ અધિકારીશ્રી, રાજકોટ શહેર, રાજકોટ.
- (૬) જીલ્લા પોલીસ અધિકારીશ્રી, રાજકોટ શહેર, રાજકોટ.
- (૭) સહકારશ્રી, રાજકોટ શહેર.
- (૮) મ્યુનિસિપલ કમિશરશ્રી, રાજકોટ શહેર.
- (૯) નિયામકશ્રી, માહિતી પ્રવૃત્તિ ક્ષેત્રવચ્ચ અકાશવાણી મુખ્ય સચિવાલય બ્લોક નં.૩, વીજા માથો, ગુ. રા. ગાંધીનગર.
- (૧૦) જીલ્લા સરકારી તકિલશ્રી, સેક્શન કોડ, રાજકોટ.
- (૧૧) મેનેજરશ્રી, ભવનગંઢ પેસ, રાજકોટ સ્વેચ્છે જાગૃત્ય માં પ્રસિધ્ધ કરવા માટે.
- (૧૨) મહત્વની પોલીસ કમિશરશ્રી, પૂર્વ, પશ્ચિમ વિભાગ, રાજકોટ શહેર.
- (૧૩) આર્થિક કમિશરશ્રી, (ઈ.એ.), રાજકોટ રીક્રીએશન, રાજકોટ.
- (૧૪) આચાર્ય પોલીસ અધિકારીશ્રી, પી. ઈ.સ.શ્રી, રાજકોટ જે.એ. સંકલન પી.એ.
- (૧૫) તમામ પો.સે. ઈન્ચાર્જશ્રીઓ રાજકોટ શહેર(નકલ) યોજાઈ લાઉટ સ્પીકર વાહન દ્વારા જાહેરાત કરાવવા માટે.
- (૧૬) તમામ સ્થાનિક તથા માથા ઈન્ચાર્જશ્રીઓ, રાજકોટ શહેર.
- (૧૭) ઈન્ડીય ઈન્ચાર્જશ્રી, રાજકોટ શહેર (૧૦ નકલ) વર્તમાનપત્રોને આપવી.
- (૧૮) તેમજ કમિશરશ્રી, ... તમામ ખાસતી સંસ્થાઓને અવાગલ કરવાવા માટે.

નકલ સુવિનય રવાના-

- (૧) રાજકોટશ્રી, ડાઈરેક્ટ, ગુ. રા. યોજાઈ જનરાજ્ય.
  - (૨) રાજકોટશ્રી, ડિરેક્ટોર એન્ડ સેક્શન કોડ, રાજકોટ.
  - (૩) રાજકોટશ્રી, ગૌડ જયુડીશિયલ મેજ. ડા. કોડ, રાજકોટ.
  - (૪) રાજકોટશ્રી, એડીશનલ સેક્શન ૧૪ કોડ, રાજકોટ.
  - (૫) એડમીનિસ્ટ્રેટીવ મેજ. શ્રી, રાજકોટ શહેર.
  - (૬) એડમીનિસ્ટ્રેટીવ મેજ. શ્રી, રાજકોટ તલુકા.
  - (૭) સચૂકત માહિતી, નિયામકશ્રી, રાજકોટ.
- (સ્થાનિક વર્તમાનપત્રો, અકાશવાણી તથા ટુરટર્સન ક્લબમાં પ્રસિધ્ધ કરવા અને વર્તમાનપત્રોની કાપડીઓ યોજાવવા માટે)

કોડ



## રાજકોટ મહાનગરપાલિકા

હિસાબી શાખા

ડૉ.આંબેડકર ભવન, ઢેબરભાઇ રોડ, રાજકોટ - ૩૬૦ ૦૦૧.

રા.મ.ન.પા.હિસાબીજા.નં. ૪૨૧

તા. ૧૬/૬/૨૦૧૭

નોંધ -

વિષય - Vendor Regi. માં GST No. Update કરવા બાબત

ઉપરોક્ત વિષયે જણાવવાનું કે રાજકોટ મહાનગરપાલિકા નાં તમામ વેન્ડર / કોન્ટ્રાક્ટરો ની 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.

૧૧/૬  
૪૪૬/૧ (૯૨)  
પાલિકા મહાનગરપાલિકા  
નોંધ - ૫૮/૬/૨૦૧૭

ચીફ એકાઉન્ટન્ટ  
રાજકોટ મહાનગરપાલિકા

નોંધ - તમામ વિગતો ચકાસીને અપડેટ કરવી / ચકાસીને મોકલવી અન્યથા સપ્લાયર્સ ને TDS ની કેડીટ મળશે નહીં જેની નોંધ લેવા વિનંતી.

નકલ અમલવારી અર્થે

૧. તમામ શાખા અધિકારીશ્રી ઓ

નકલ સવિનય જાણ અર્થે

- માન. કમિશ્નર સાહેબશ્રી
- માન. નાયબ કમિશ્નર સાહેબશ્રી

રાજકોટ મહાનગરપાલિકા  
સે. ઝોન બાંધકામ શાખા  
ઈન્વર્ડ નંબર ૧૩૭  
તારીખ ૧૬/૬/૧૭



આથી હું અમિત અરોરા (IAS), મ્યુનિસિપલ કમિશનર, રાજકોટ મહાનગરપાલિકા, રાજકોટ ગુજરાત પ્રોવિન્સીયલ મ્યુનિસિપલ કોર્પોરેશન એક્ટ-૧૯૪૯ની જોગવાઈ અનુસંધાને મળેલ સત્તા મુજબ, જાહેર હિતને ધ્યાને લઈ, 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 ઉત્પત્તિ 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 સ્થિતિ 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 પ્રવૃત્તિ ચાલી રહેલ છે, આવી કોઇપણ પ્રવૃત્તિ જન આરોગ્ય માટે બિન સલામતી નોતરે તેમ હોય, ગુજરાત પ્રોવિન્સીયલ મ્યુનિસિપલ કોર્પોરેશન એક્ટ અનુસુચી-૩ ના પ્રકરણ-૧૪ ની જોગવાઈઓ અનુસંધાને આવી તમામ પ્રવૃત્તિ કરવાનો અગાઉના જાહેરનામા નં.રા.મ.ન.પા./મ.ઓ./સો.વે.સે./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

ઉપરોક્ત 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, લીજજત પાપડ પાસે, એફ.પી.-૩૮/એ, ૩૯/બી.

ઉપરોક્ત નિયત કરેલ સ્થળો સિવાય અન્ય કોઇપણ જગ્યાએ કોઇપણ ઇસમ/ઇસમો છકડો, ટ્રેક્ટર અથવા ડમ્પર દ્વારા (Construction and Demolition Waste) નો નિકાલ કરતાં પકડાશે તો પ્રથમ વખત છકડો/ટ્રેક્ટર ટીઠ રૂ.૭,૫૦૦/- તથા ડમ્પર ટીઠ રૂ.૧૫,૦૦૦/-, બીજી વખત છકડો/ટ્રેક્ટર ટીઠ રૂ.૧૫,૦૦૦/- તથા ડમ્પર ટીઠ

રૂ.૩૦,૦૦૦/- અને ત્રીજી વખત છકડો/ટ્રેક્ટર 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 ઉપરોક્ત 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 મિલકતનાં રીપેરીંગ કે કાટમાળનો નિકાલ નીચે મુજબનાં નિયત થયેલ ચાર્જીસ ભરપાઇ કરી નિકાલ કરવાની વ્યવસ્થાનો લાભ મેળવી શકશે.


- રીક્ષા કે ૧/૨ ટ્રેક્ટર રૂ.૩૦૦/-
- ટ્રેક્ટર જેટલો જથ્થો રૂ.૫૦૦/-
- ટ્રક / ડમ્પર જેટલો જથ્થો રૂ.૧,૦૦૦/-

ઉપરોક્ત નિયત કરાયેલ સ્થળોએથી ખાનગી માલિકો, જુનો એકત્રિત થયેલ બાંધકામનો કાટમાળ પોતાના ઉપયોગ માટે સ્વખર્ચે ઉપાડી લઇ જઇ શકશે.

ઉક્ત જાહેરનામાનો ચુસ્તપણે અમલ કરવો.

રાજકોટ.

તા. ૫ / ૬ / ૨૦૨૨

  
કમિશનર  
રાજકોટ મહાનગરપાલિકા



અવકાશ અધિકારી ૨૦૦ (૨૦૦૮) X ૦૨૯

સુધી બાંધકામની કામગીરી  
અને નીચલી કામગીરી  
કેસ નં. ૧૩-૧૦૧/૨૦૦૮  
બાંધકામ  
૦૨/૦૮/૨૦૦૮

અધિકારી ૨૦૦ (૨૦૦૮) X ૦૨૯  
અધિકારી નામ અને મકામ વિષય  
૦૨/૦૮/૦૮

વિષય: કરારખત પર એમ. ડ્યુટી વસુલાત બાબત.  
સંદર્ભ:- આપની કચેરીનાં તા. ૩૦/૦૮/૨૦૦૮નો પત્ર

અરજીકર્તા વિષય અને સંદર્ભ પત્ર દ્વારા આપની કચેરી દ્વારા "કરાર ખત" પર  
વસુલાતની સંબંધ ડ્યુટીના માર્ગદર્શન બાબતે જણાવવાનું કે, અરજીની કચેરીના પરિપત્ર નં. એમ.  
૨૦૦ (૨૦૦૮) તા. ૩૦/૦૮/૨૦૦૮ તા. ૫/૨/૨૦૦૯ ના પરિપત્ર ની મુજબ મોકલવામાં આવે છે. જેના પર આ  
વચન (૨)માં જણાવેલ સ્તેષ ડ્યુટી વાપરવાની થાય છે.

વિષયમાં જણાવવાનું કે, આપના દ્વારા અંગ્રેજી સ્તેષ વિગત અનુસાર અરજીનાં તા.  
૩૦/૦૮/૨૦૦૮ ના પરિપત્ર ના મુદ્દા નં. ૨ મુજબ એડીમેન્ટ માટે રૂ. ૧૦૦/- તથા ડિપોઝીટ તરીકે બેલામાં  
અરજીનાં મેમ્બરશીપ બેલાની લીસ્ટ ડિપોઝીટ તથા નાની બચત પગલેની ર. ૫ ટુ (અહીં રૂ. ૫) રકમ રૂ.  
૨૦,૦૦૦/- ઉપર આઈકલ - ૩૬ (૬) સાથે આઈકલ - ૨૦ (૬)નાં પ્રવાહક કર તથા  
૨૦૦૦/- મુજબ અરજીકર્તાને ૧૦૦ એ ૪.૦% મુજબ એમ ડ્યુટી ભરવામાં આવવામાં આવેલાં  
વચન (૨)માં જણાવેલ છે. જે વિગત ટાપ.

૨૧-  
૨૨/૦૮/૦૮

Off. of the E. E. P.A.  
R&B Div. Gandhinagar  
૨૨/૦૮/૦૮  
AUG 2008

સુધી બાંધકામની કામગીરી  
અને નીચલી કામગીરી  
કેસ નં. ૧૩-૧૦૧/૨૦૦૮  
બાંધકામ  
૦૨/૦૮/૨૦૦૮



ન.સ્ટેમ્પ-અનામ-૧૪-૨૦૦૭-૯૩૮

સુપ્રિ.ઓફ સ્ટેમ્પસની કચેરી,  
સ્ટેમ્પ અને નોંધણી ભવન,  
સેક્ટર-૧૩-સી, ખ રોડ,  
ગાંધીનગર.

તા. ૧-૨-૦૭

પરિપત્ર:-

અત્રેની કચેરીના ધ્યાન ઉપર આવેલ વિગત મુજબ ગુજરાત રાજ્યમાં આવેલ જીલ્લા પંચાયત, નગર પાલિકાઓ તરફથી કરવાના થતા બાંધકામ તથા અન્ય કામો માટે ટેન્ડર બહાર પાડી. કોન્ટ્રાક્ટરો પાસે કામગીરી કરાવવામાં આવે છે. આવી કામગીરી માટે જે કોન્ટ્રાક્ટરનું ટેન્ડર મંજૂર કરવામાં આવે છે. તે ટેન્ડરની અંદાજીત રકમ પૈકી નિયમોનુસાર અનામતની (સીક્યુરીટી - ડિપોઝીટની) રકમ લેવામાં આવે છે. તે અંગે જીલ્લા પંચાયત / નગરપાલિકા / મહાનગરપાલિકા અને કોન્ટ્રાક્ટર વચ્ચે કરાર કરવામાં આવે છે. આવા કરારો સ્ટેમ્પ ડ્યુટીના અભિપ્રાય માટે અત્રે રજૂ કરવામાં આવે છે. તેમાં જે ડિપોઝીટની રકમ અનામત મુકવાની થાય છે. તે રોકડ, ચેક, ડીમાન્ડ ડ્રાફ્ટ બેંક ગેરંટી ફિક્સ ડિપોઝીટ રીસીપ્ટ એન.એસ.સી. બચતપત્ર વિગેરે પૈકીના એક યા વધુ માધ્યમથી આપવામાં આવે છે. તેમાં ટેન્ડર અન્વયે કેટલી રકમ સીક્યુરીટી ડિપોઝીટ ગેરંટી મુકવાની છે અને કયા માધ્યમથી મુકવામાં આવે છે. તેની પુરેપુરી વિગત રજૂ કરેલ ન.હોપ 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 વિગતો સ્ટેમ્પ ડ્યુટી લેવાની થાય છે.

(૧) અનામતની જે રકમ રોકડ, ચેક યા ડ્રાફ્ટથી લેવામાં આવે અથવા તો બેંક ગેરંટીથી આપવામાં આવે તો કરારના લેખ ઉપર મુંબઈ સ્ટેમ્પ અધિનિયમ - ૧૯૫૮ની અનુસુચિ-૧ ના આર્ટીકલ -૫ (જ) મુજબ કરાર ઉપર રૂ. ૧૦૦/- સ્ટેમ્પ ડ્યુટી વાપરવાની થાય છે.

(૨) ટેન્ડર અન્વયે જે અનામતની રકમ ફિક્સ ડિપોઝીટ 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 રૂ. ૧૦૦/- અથવા તેના ભાગ માટે ૪.૨૫% પ્રમાણે સ્ટેમ્પ ડ્યુટીને પાજ 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 ડ્યુટીને પાજ બને છે. તે મુજબ અમલ કરવા વિનંતી છે. સાર્યોસાય આપના બારા.

સુપ્રિ.ઓફ સ્ટેમ્પસની  
ISHN

ઉપરોક્ત  
નવનિયમિત ઉપરોક્ત  
ક્ર. નં. ૧૧૫૭  
તા. ૦૨/૦૨/૦૭

- 23 -

સુપ્રિ.ઓફ સ્ટેમ્પસની  
૦૨/૦૨/૦૭



કોન્ટ્રાક્ટરને વર્ક ઓર્ડર આપવામાં આવે તે સમયે કરારનામા ઉપર વિકત વિગતે યોગ્ય સ્ટેમ્પ  
કમ્પ્લી ભરપાઈ કરેલ છે. કેમ? તેની સુકાસણી કરવા પણ જમાવવામાં આવે છે.



જિલ્લા  
અધિકારી, ગોંડલ સ્ટેમ્પ  
ગુજરાત રાજ્ય સરકાર

પ્રતિ, (૧) જીલ્લા કોન્ટ્રાક્ટર  
(૨) જીલ્લા વિકાસ અધિકારી,  
જીલ્લા વિકાસ અધિકારીની કચેરી

(૩) મુનીતા પલ કમિશ્નરશ્રી,  
મુ. કમિશ્નરશ્રીની કચેરી

(૪) મોક અંકિસરશ્રી તમામ  
નગરપાલિકા કચેરી,  
(૫) (૬) (૭) જી. કાચકાટ.

વચાવકી કચેરી  
અધિકારી સ્ટેમ્પ  
ગોંડલ





RAJKOT MUNICIPAL CORPORATION  
ACCOUNTS DEPARTMENT  
Room No. 4, 2<sup>nd</sup> 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 registered he will give fresh details along with tender.
- (2) Accounts branch will designate a person who will keep the forms and also authorize new registrations or edit existing registrations.

TO,  
CHIEF 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

તા. ૨૦/૦૯/૨૦૧૮

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 ટેક્સ એક્ટ, ૨૦૧૭ તથા સેન્ટ્રલ ગુડ્સ  
એન્ડ સર્વિસ ટેક્સ એક્ટ, ૨૦૧૭ ની કલમ ૫૧ અનુસાર રૂ. ૨,૫૦,૦૦૦ થી વધુ રકમના વેરાપાત્ર  
ચીજવસ્તુઓ ખરીદે કે વેરાપાત્ર સેવાઓ કોન્ટ્રાક્ટથી મેળવે તો કુલ ૨% (બે ટકા) ટેક્સ ડિડક્શન એટ સોર્સ  
(જી.એસ.ટી. ટી.ડી.એસ) કાપવાનો થાય છે.

આમ ઉપરોક્ત બાબતે ધ્યાને લઈ વધારાની રકમ 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

સા.મ.ન.પા.લી.નંબ. 1571  
૨૧/૧૧/૧૬

સા.મ.ન.પા.લી.નંબ. 1571

રાજકોટ મહાનગરપાલિકા  
લીંગલ શાખા  
તા. ૨૧/૧૧/૨૦૧૬

પરિપત્ર :

વિષય : ઇ.પી.એફ. યોજના અંતર્ગત આપવાની થતી માહિતી

રાજકોટ મહાનગરપાલિકાની જુદી-જુદી શાખાઓમાં કરવા બજાવતા કર્મચારી ક જેટલે ઇ.પી.એફ. યોજના લાગુ પડે છે, અથવા તો જેઓને એક વખત આ યોજના લાગુ પડી ગયેલ હોય, તેઓના ઇ.પી.એફ. એકાઉન્ટમાં કે વાચ સી. (A.R.C) ફોર્મમાં આધાર કાર્ડ, પાનકાર્ડ, પેન્ડ એકાઉન્ટની વિગતો જવા નોંધાડવા અથવા બપડેટ કરવાના બાકી હોય તેનું લીસ્ટ ઇ.પી.એફ. કચેરીમાં જે કર્મચારી/એકાઉન્ટ ડેલ્ટાની જરૂરી વિગતો પુરી માહત્તમાં આવેલ ન હોય તે સત્વરે પુરી માહત્તની આપ છે. તથા અરેથી આ કાર્યકોશ સંકલન બંધ નિયુક્ત કરવામાં આવેલ પેનલ એડવોકેટ તરફથી ઇ-મેઇલ મારફતે યાદી પુરી પાડવા છે. જે આ કામ સામેલ છે. સદરફું લીસ્ટના કર્મચારીઓની વિગત સંબંધિત કામાએ દિન-૨ માં પેનલ એડવોકેટ અમલક ડસ્કલેન્ટ ને અચુકપણે પહોંચતી કરવાની થાય છે.

આ ઉપરાંત રાજકોટ મહાનગરપાલિકાની જુદી-જુદી શાખાઓ દ્વારા સને ૨૦૧૬ થી આજકલ સુધી કોન્ટ્રાક્ટરો મારફતે કામ કરાવેલ કામ જેમાં માનવશક્તિ ઉપર્યોગ થયો હોય તે સંબંધિત કોન્ટ્રાક્ટરો ઇ.પી.એફ. એક્ટ તથા ઇ.એસ.આઇ. એક્ટ હેઠળ રજીસ્ટ્રેશન કરાવેલ છે કે કેમ તેની ખસક બાદ જે સંબંધિત કોન્ટ્રાક્ટરશ્રીઓના બીલ યાસ કરવા અગાઉ સુધના આપવામાં આવેલ હતી. જેનાં કચેરી કુલ સખીના સુચના આપવામાં આવે છે. સંબંધિત કોન્ટ્રાક્ટરોની તથા તેઓ ડસ્કલના કમિશીની ઇ.પી.એફ. કચેરી તરફથી આવેલ પત્રમાં દર્શાવેલ વિગતો તાત્કાલિક બસરથી પેનલ એડવોકેટશ્રીને દિન-૫ માં પહોંચતી કરવા હાલ શાખાધિકારીને સુચિત કરવામાં આવે છે.

રાજકોટ મહાનગરપાલિકા  
લિંગલ શાખા  
કોર્ડ નં. ૩૫૧  
૨૧/૧૧/૧૬

सदरतः विगत विगत समयमवधिदामा न प्रतीकपाल संशोधनां प्रकृत त्ते अपुगे यने मोटी विगतो मोडकपा जगते सम्पित राजाधिकारीनी ज्यमितगत स्वाधकारी नुडी करवता वावरो जेरी लीमता इतिवता प्रगाडेना सजकोडे मजमजरपाडिकाना कामेयनीधोनी विगतो नरा वापणी इतिनी कसकना गिन्दाकर तथा तेवो कसकना जमिदोनी विगतो योज्य यजसही उते सिवत उरेन समयमवधिदामा पेनल जेडवीकेटने पडोपटी करवी तथा तेनी जसु लीमल साधाने करवी

विपरीत परिपत्रनी सुस्तपष्टे ताकडिके वातरवी खमल उरवी

नकल सविनय देवाला :-

- महान इमिशनर कार्यालय
- नाथन इमिशनर इ.स.जी. से.जी.

नकल देवाला :-

समाप्त राजाधिकारी (व्यमलसंग)

पेनल जेडवीकेटनु सरनामु : बध्या कनेटलने  
 प०२ अकपूरेड कसेर  
 राजोड रोड, सायकल जैन ठीपर  
 सजकोडे, जेम नं. २४५३३८०

  
 सजकोडे मजमजरपाडिके

नोध : सम्पित गिन्दाकरते ए.पी.जेड केर तथा ए.पिस.आ. जेड केरन ए.पिस.आ. न जतेवा लेव तेव  
समाप्त गिन्दाकरतेना प्रीलो ओडीट तथा डिमाणी साधाने मफुर करवा नरी



સ.મ.ન.પા./લીગલ/જા.નં. ૧૮૧૮

રાજકોટ મહાનગરપાલિકા

લીગલ શાખા

તા.૧૮/૨/૨૦૧૭

ક્રમ:

વંશણે : લીગલ ફાઇલ નં.૩૭૧/૨૦૧૬-૧૭

રાજકોટ મહાનગરપાલિકાની કામગીરી માટે જુદી-જુદી શાખાઓ દ્વારા કામગીરીના પ્રકારને આધારે લાઇ નિયમ અનુસારની પ્રક્રિયા અનુસરીને એજન્સી/સપ્લાયર/કોન્ટ્રાક્ટર સાથે જોગવાઈઓ સંબંધિતે કરવામાં આવે છે. મહાનગરપાલિકાની કામગીરી સંદર્ભે તૈયાર કરવામાં આવતા ટેન્ડર/કારનામામાં લખતો લખતની જરૂરીયાતને ધ્યાને લઈ આર્બિટ્રેશન (Arbitration) ની જોગવાઈઓનો સમાવેશ કરવામાં આવેલ છે.

રાજકોટ મહાનગરપાલિકાની કામગીરી માટે કરવામાં આવેલ કારનામાની શરતો અનુસંધાને અમુક એજન્સી/સપ્લાયર/કોન્ટ્રાક્ટર દ્વારા છેલ્લા કેટલાક વર્ષોથી નામદાર લાઇકોટ સમક્ષ આર્બિટ્રેટરશ્રીની નિયુક્તિ અંગે પીટીશનો કરવામાં આવે છે, જેના કારણે મહાનગરપાલિકાની કામગીરીના વારણમાં વધારો થયેલ છે. અને સંબંધિત અધિકારીશ્રીઓને વારંવાર અમદાવાદ ખાતે હાજર રહેવું પડતું હોય તેના કારણે અગત્યના પ્રોજેક્ટો સહીત કચેરીની કામગીરી તેમજ પ્રજાકીય કામો ઉપર વિપરીત અસર થવા પાગેલ છે, તેમજ અરજદારોને હેરાન થવું પડે છે. આ અંગે કાયદાકીય, શાખાના અભિપ્રાય અને પ્રકરણની વિગતો જોતા આ કામે તેકલ્પિક ઉપાય (alternative remedy) ઉપલબ્ધ હોય મહાનગરપાલિકાના ટેન્ડર/કારનામામાં આર્બિટ્રેશનની જોગવાઈઓને સામેલ કરવાનું ઉચિત જણાતું નથી.

આથી " રાજકોટ મહાનગરપાલિકાના કામે કરવામાં આવતા ટેન્ડર ડોક્યુમેન્ટ અને કારનામામાં આર્બિટ્રેશન (Arbitration) ને લગત જોગવાઈઓ દૂર કરવાનો," અને તેના બદલે "ટેન્ડરની શરત/કારનામાની શરતના અર્થઘટન સંદર્ભે મહાનગરપાલિકાના કમિશનરશ્રીનો નિર્ણય આખરી અને બંધનકર્તા રહેશે," અને "ટેન્ડરની/કારનામાની 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 ડોક્યુમેન્ટ તેમજ કારનામામાં સમાવેશ કરવાનો આથી હુકમ કરવામાં આવે છે.

આ હુકમનો અગલ તાત્કાલિક અસરથી ચુસ્તપણે કરવો.

કમિશનર

રાજકોટ મહાનગરપાલિકા

નકલ રવાના જાણ અર્થે : નાયબ કમિશનરશ્રી (તમામ)

નકલ રવાના જરૂરી કાર્યવાહી અર્થે : તમામ શાખાધિકારીશ્રીઓ

રા.મ.ન.પા./લીગલ/જા.નં. 122)

રાજકોટ મહાનગરપાલિકા  
લીગલ શાખા,  
રાજકોટ.  
તા. 25/01/2023

પરિપત્ર:

વિષય: ઇ.પી.એફ. તથા ઇ.એસ.આઇ.સી. બાબતેનો અભિપ્રાય.  
સંદર્ભ: ૧) રા.મ.ન.પા./હિસાબી/જા.નં. ૧૨૦૯ તા. ૧૦/૮/૨૦૨૩  
૨) રા.મ.ન.પા. ઇન્વર્ડ નં. ૮૧૨ તા. ૨૧/૦૮/૨૦૨૩

ઉપરોક્ત વિષય તથા સંદર્ભે અન્વયે જણાવવાનું કે, સંદર્ભ - ૧ અન્વયેના પત્રથી હિસાબી શાખા દ્વારા ઇ.પી.એફ. તથા ઇ.એસ.આઇ.સી. લાગુ પાડવા બાબતેનો અભિપ્રાય માંગવામાં આવેલ હતો જે અનુસંધાને પેનલના એડવોકેટશ્રી તરફથી સંદર્ભ - ૨થી અભિપ્રાય આવેલ છે. સદરહું અભિપ્રાય રાજકોટ મહાનગરપાલિકાની તમામ શાખાને તથા શાખા હસ્તકના કોન્ટ્રાક્ટરોને લાગુ પડતો હોય જેથી સંબંધિત તમામ શાખાને સદરહું અભિપ્રાય વંચાણે લેવા સુચિત કરવામાં આવે છે.

આ ઉપરાંત આપની શાખાના કર્મચારી તથા કોન્ટ્રાક્ટરશ્રીઓની ઇ.એસ.આઇ.સી. અન્વયેની માહિતી આપવાની બાકી હોય તે તમામે દિન - ૦૨માં પેનલના એડવોકેટશ્રીને માહિતી પહોંચતી કરે અને તેની જાણ લીગલ શાખાને કરે અન્યથા તેમાંથી ઉત્પન્ન થતી તમામ જવાબદારી માટે વ્યક્તિગત રીતે જવાબદાર ઠેરવવામાં આવશે.

સદરહું પરિપત્રનો તાત્કાલિક અસરથી ચુસ્તપણે પાલન કરવું.

બિડાણ: સંદર્ભ: અન્વયેના પત્રો

નકલ સવિનય રવાના:

- નાયબ કમિશનરશ્રી ( વે. ઝોન, ઇ. ઝોન )
- તમામ શાખાશિકારીશ્રીઓ ( અમલ સારું )

રાજકોટ મહાનગરપાલિકા  
એડવોકેટશ્રી વિભાગ  
પરિપત્ર નં.  
ઈન્વર્ડ નં. 2916.....  
તારીખ 26/1/23

નાયબ કમિશનરશ્રી

રાજકોટ મહાનગરપાલિકા

મુદત  
જાણી  
જાણી  
જાણી



# Shraddha Associates

c-57

Corrosp. Add. :

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LABOUR LAW CONSULTANT



Prop. : Parag J. Dodi  
(Advocate & Labour Law Advisor)

Address : 2-Nalanda Bunglow  
6-Pragati Society, Raiya Road, Rajkot-

Ref.

Date :

-08-2023.

પ્રતિ,  
લેબર ઓફીસરશ્રી,  
રાજકોટ મહાનગરપાલીકા,  
રાજકોટ.

વિષય :- ઈપીએફ તથા ઈએસઆઈસી લાગુ પડવા રામનપા/હીસાબી/જા.નં.૧૨૦૮ પ્રાબલે અભિપ્રાય.

રેફ. :- રા.મ.ન.પા./લીગલ/જા.નં. ૧૦૮૦, તારીખ ૧૦/૦૮/૨૦૨૩.

મે. સાહેબશ્રી,

સવિનય સાથે જણાવવાનું કે, ઉપરોક્ત વિષય અને રેફરન્સથી આપના તરફથી અભિપ્રાય માંગવામાં આવેલ. જેની સાથે મોકલેલ ફોર્મટ મુજબ વિગતવાર રીમાર્ક્સ આપેલ છે.

રાજકોટ મહાનગરપાલીકાનાં શાખા અધિકારીએ બીલ બનાવતી વખતે બીલ બનાવતી વખતે નીચે મુજબનાં ડોક્યુમેન્ટ્સ ચેક કરી બીલ સાથે સામેલ કરવા જરૂરી છે.

દર મહીને લેવાનાં ડોક્યુમેન્ટ.

૧. પગારપત્રક (જેમાં દરેક કર્મચારી તથા કોન્ટ્રાક્ટરની સહી/સિક્કો અને જે તે શાખા અધિકારીની સહી/સિક્કો)
૨. હાજરી પત્રક.
૩. પી. એફ. ચલણ.
૪. પી.એફ. ઈ.સી.આંર.
૫. ઈ.એસ.આઈ.સી. પેઈડ ચલણ.
૬. ઈ.એસ.આઈ.સી. લાગુ ન પડતો હોય તેવા કર્મચારી (રૂ.૨૧૦૦૦/- થી વધુ પગારવાળા) ની WC પોલીસી.
૭. પી.ટી. નાં ચલણ. ( જે કર્મચારીનો પગાર રૂ.૧૨૦૦૦/- કે તેથી વધુ થતો હોય તેનાં. )

વાર્ષિક લેવાનાં ડોક્યુમેન્ટ.

૧. જો ૫૦ કે તેથી વધુ માણસો કોન્ટ્રાક્ટરમાં કામ કરતા હોય તો લેબર લાઈસન્સ.
૨. લેબર વાર્ષિક પત્રક.
૩. બોનસ પત્રક.
૪. જે તે ડીપાર્ટમેન્ટને લાગુ પડતા સરકારશ્રીનાં લાયસન્સની નકલ ( ફુડ , ઈલેક્ટ્રીસીટી વગેરે )

દરેક શાખા હસ્તકનાં કોન્ટ્રાક્ટર / એજન્સી ઉપરોક્ત સંદર્ભ અન્વયે પાલન કરાવવાની જવાબદારી મુખ્ય માલિક તરીકે જે તે શાખાનાં શાખા અધિકારીની ઠરાવી શકાય.

સહકારની અપેક્ષા સહ.

આપનો વિશ્વાસુ,

બિડાણ :- ઉપર મુજબ.

SHRADDHA ASSOCIATES

  
PROPRIETOR

લીગલ ઈન્વર્ડ નં. 812
સરકારી ઈન્વર્ડ નં. -
25/08/23

ના બાલદેવ  
ના શ્રીમતી મમ્મ  
ના નામની તરફ  
ના

EPF તથા ESI લાગુ પડે છે કે કેમ ?

ક્રમ	વારંવાર ઉદભવતા પ્રશ્નો.	લાગુ પડે છે કે કેમ ?	
		EPF	ESI
1	કોમ્પ્યુટર ખરીદી કરી અને રાજકોટ મહાનગરપાલીકાની જગ્યામાં ઈન્સ્ટોલેશન કરવાનું થાય તો લાગુ પડે કે કેમ ?	ના	હા
2	રાજકોટ મહાનગરપાલીકાની જગ્યાનું સંચાલન કરતા કોન્ટ્રાક્ટર, વેન્ડર , ટ્રસ્ટ ને લાગુ પડે કે કેમ ? (જેમ કે સ્પોર્ટ સંકુલ, ગાર્ડન, પાર્કીંગ વગેરેનું સંચાલન કોન્ટ્રાક્ટર, ટ્રસ્ટ સંસ્થા વગેરે ધ્વારા કરવામાં આવે )	હા	હા
3	રસ્તા કામ, ટ્રેનેજ કામ, પાણી વિતરણની કામગીરી સાથે સંકળાયેલા કોન્ટ્રાક્ટરોને લાગુ પડે કે કેમ ?	હા	હા
4	જનરલ બોર્ડનાં માઈક સંચાલનનાં કોન્ટ્રાક્ટમાં લાગુ પડે કે કેમ ?	હા	હા
5	રાજકોટ મહાનગરપાલીકાનાં ગ્રાઉન્ડ સંચાલન કરતા કોન્ટ્રાક્ટરોને લાગુ પડે કે કેમ ?	હા	હા
6	અઉટ સોર્સીંગ સ્ટાફનાં કીસ્સામાં વેન્ડરને લાગુ પડે કે કેમ ?	હા	હા
7	રાજકોટ મહાનગરપાલીકાનાં રેનબસેરાનું સંચાલન કરતા કોન્ટ્રાક્ટરોને લાગુ પડે કે કેમ ?	હા	હા
8	રાજકોટ મહાનગરપાલીકાની જગ્યામાં ઈવેન્ટમેનેજમેન્ટ કરવામાં આવે ત્યારે ઈવેન્ટમેનેજમેન્ટ કંપનીને તથા ગાયક / આર્ટીસ્ટ / મ્યુઝીશીયનને લાગુ પડે છે કે કેમ ?	ના	ના
9	મશીન / વાહન ફક્ત પાર્ટસ ખરીદીનાં કિસ્સામાં લાગુ પડે છે કે કેમ ?	ના	ના
10	મશીન / વાહન ફક્ત પાર્ટસ ખરીદી અને ફીટીંગ / રીપેરીંગ રાજકોટ મહાનગરપાલીકાની જગ્યામાં કરવામાં આવતુ હોય તેવા કિસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
11	મશીન / વાહન ફક્ત પાર્ટસ ખરીદી અને ફીટીંગ / રીપેરીંગ રાજકોટ મહાનગરપાલીકાની જગ્યામાં કરવામાં આવતુ હોય તેવા કિસ્સામાં લાગુ પડે છે કે કેમ ?	ના	ના
12	કોઈપણ ઈલેક્ટ્રીક વસ્તુની ખરીદી તથા તેનું ઈન્સ્ટોલેશન જેમ કે કેમેરા લાઈટ ફીટીંગ, કોમ્પ્યુટર, પીન્ટર વગેરે કીસ્સામાં લાગુ પડે છે કે કેમ ?	ના	હા
13	મિત્ર મંડળ તથા સખી મંડળનાં કિસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
14	એપ્રેન્ટીસ અને મેઈન્ટેનન્સ સર્વિસીઝ કોન્ટ્રાક્ટનાં કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
15	ટુર્સ / ટ્રાવેલ્સ ભાડે રાખવામાં આવેલ ડાઈવર સહીત તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
16	ઈલેક્ટ્રીક પોલ ફીટ કરવા શિફ્ટ કરવા અથવા નવા ઈન્સ્ટોલ કરવા વગેરે કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા



EPF તથા ESI લાગુ પડે છે કે કેમ ?

17	એર કુલર, એ.સી. , વોટર કુલર રીપેરીંગ વગેરે કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
18	રાજકોટ મહાનગરપાલીકાનાં કરાર આધારીત કર્મચારીનાં કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
19	રજીસ્ટ્રેશન સમયે કુલ પગાર ઈ.પી.એફ. / ઈ.એસ.આઈ.સી. નાં નિયમ મુજબનાં પગારમર્યાદા કરતા ઓછી હોય પરંતુ ત્યારબાદ પગાર ઈપીએફ, ઈએસઆઈસી નાં નિયમ મુજબ પગાર મર્યાદા કરતા વધી તો ક્યાં સુધી કપાત કરવી. (ફીક્સમાંથી કાયમીનાં કીસ્સામાં / ફીક્સ પગાર વધી જાય તેવા કીસ્સામાં )	હા	ના
20	ફીક્સ / કાયમી થાય તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
21	વાલ્વ ઓપરેટર તથા પમ્પ ઓપરેટરનાં કીસ્સામાં લાગુ પડે છે કે કેમ?	હા	હા
22	લીગલ, પ્રોફેશનલ સર્વિસ રાજકોટ મહાનગરપાલીકાની જગ્યા પર આપવામાં આવે તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
23	રાજકોટ મહાનગરપાલીકા ધ્વારા વિડીયોગ્રાફી / ફોટોગ્રાફી કરાવવામાં આવે તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
24	રાજકોટ મહાનગરપાલીકાની જગ્યામાં ઝેરોક્ષ મશીન ચલાવે તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	ના	ના
25	ન્યુઝ પેપર અથવા કોઈપણ વસ્તુ કે જેની ખરીદી કરી હોય અને જે રાજકોટ મહાનગરપાલીકાના પ્રીમાઈસીસ સુધી પહોંચાડવાની જવાબદારી વેન્ડરની હોય તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	ના	ના
26	રાજકોટ શહેરમાં મોબાઈલ ડિસ્પેન્સરી ચલાવવા આપવામાં આવે તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
27	ફક્ત એક વખત કામગીરી કરવાની હોય તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	ના	ના
28	હોર્ડીંગ બોર્ડ ચડાવવા તથા ઉતારવાની કામગીરીનો એજન્સીને કોન્ટ્રાક્ટ આપેલ હોય તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
29	રાજકોટ મહાનગરપાલીકાની જગ્યામાં કાર્ટીઝ રીપેરીંગ તથા રીફીલીંગ તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા
30	કેટરીંગ સર્વિસ અથવા હોટલમાંથી ફુડ પાર્સલ તેમજ કુરીયર સર્વિસ રાજકોટ મહાનગરપાલીકાને ડીલીવરી કરવામાં આવે તેવા કીસ્સામાં લાગુ પડે છે કે કેમ ?	ના	ના
31	સોલાર પેનલ તથા રૂફ ટોપ સોલાર પેનલનાં રાજકોટ મહાનગરપાલીકાની જગ્યામાં ઈન્સ્ટોલેશન તથા મેઈન્ટેનન્સનાં કીસ્સામાં લાગુ પડે છે કે કેમ ?	હા	હા

