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| **TENDER FOR: STRUCTURAL REPAIR & REHABILITATION, PAINTING ETC OF INDIAN BANK QUARTERS NEAR SANGEETA SOCIETY, DR. R. P. PATIL, MULUND (W), MUMBAI-400080.**      **TECHNICAL BID**  **Owner: Indian Bank, Zonal Office Mumbai South, 18th Floor, Maker Tower F wing Cuffe Parade Mumbai 400 005. Office: 022-22151871 Email:zo.mumbai.expprem@indianbank.co.in**  **Consultant: M/s. Supreme Engicons (India) Ltd. 201-A, Sunteck Grandeur, Opp. Andheri Subway, S.V.road, Andheri (W) Mumbai400058. Tel: +91-22-26774100/200. Email: info@supremeengicons.com**  **Last Date of Submission:28/12/2020 at 03:00** |

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Seal and Signature of the Tenderer

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**FORM OF TENDER**

To,

Zonal Manager,

Indian Bank Zonal office Mumbai South,

18th floor, F Wing at Maker Tower,

Cuffe Parade, Mumbai 400 005.

Dear Sir/s,

**Sub:**”STRUCTURAL REPAIRS, RENOVATION, FLOORING WORKS,   
 WATERPROOFING WORKS, ELECTRICAL WORKS & PAINTING   
 WORKS AT INDIAN BANK OFFICER QUARTERS NEAR   
 SANGEETA SOCIETY , DR. R.P ROAD , MULUND(W) , MUMBAI- 400 080”.

Having duly examined the tender documents including the drawings, specifications, designs bill of quantities relating to the works specified in the under written memorandum and having visited / inspected the site of the said works and having acquired all the requisite information relating there to as affecting this tender, I/We hereby offer to execute the works specified therein at the rates specified in the Bill of quantities **(while submitting Price Bid)** and in accordance, in all respects, with the specifications, designs, drawings and instructions in writing referred to in the conditions of tender, the Articles of Agreement, Special Conditions, if any, the Bill of quantities and Conditions of Contract and with such materials are as specified, by and in all other respects in accordance with such conditions in the Bill of quantities and conditions of contract so far as applicable.

If the tender be accepted, I/We hereby agree to abide and fulfill the terms and conditions of the said contract.

Thanking You,

Tenderers Name & Signature

Date and Company Seal:

**NOTICE INVITING TENDER**

Indian Bank, Zonal office Mumbai South, Premises Department, Mumbai invites sealed tenders under 2 bid system from reputed and resourceful bidders (Two bid System) for executing “Structural Repairs, Flooring works,Waterproofing works, Electrical works and Painting works at Indian Bank officers quarters, Near Sangeeta Society , Dr. R.P Road , Mulund(W), Mumbai- 400 080.

|  |  |  |
| --- | --- | --- |
| 1. | Name of Work | Structural Repairs, Flooring works,Waterproofing works, Electrical works and Painting works at Indian Bank officers quarters, Near Sangeeta Society ,  Dr. R.P Road , Mulund(W) , Mumbai- 400 080 |
| 2. | Estimated cost of work | Rs. 267 lakh |
| 3. | Period of completion | 9 months reckoned from the 15th day of issue of the work order or handing over of site whichever is later. |
| 4. | Validity of Tender | 90 days from the date of opening |
| 5. | Earnest Money Deposit (EMD) | **Rs.2,67,000/- (Rupees Two Lakh Fifty Thousand only)** |
| 6. | Initial Security Deposit (ISD) | 2% of the Bid Amount (Including EMD amount) |
| 7. | Retention Money (RM) | 8% against each RA bill |
| 8. | Total Security Deposit  EMD+ISD+RM | 10% of the cost. (50% will be released after 15days of payment of the final bill and the balance 50% will be released after the Defect liability Period of One year). |
| 9. | Value of work for Interim Payment | Each bill should be Minimum 25% of work order amount. |
| 10 | Tender Documents | The Tender Documents can be downloaded from the Bank’s website ([www.indianbank.in](http://www.indianbank.in) under Tenders column) |
| 11. | Cost of Tender documents | **free of cost.** |
| 12. | Liquidated Damages | 1% for delay per week of the contract value subject to maximum of 10% of contract value. |
| 13. | Pre-bid Meeting | On **16/12/2020 at 11.00 AM** at Indian Bank, Zonal office Mumbai South South Mumbai, Premises dept, 18th floor, F Wing at Maker Tower, Cuffe Parade, Mumbai 400 005.  All interested bidders can send their queries through email before the prebid date and get their queries clarified during the pre-bid meeting. |
| 14. | Last date of submission of Tenders | **28/12/2020- 15.00hrs**, at Indian Bank, Zonal office Mumbai South, Premises department, 18th floor, F Wing at Maker Tower, Cuffe Parade, Mumbai 400 005. |
| 15. | Date of Opening of Technical bid | **28/12/2020- 15.30hrs**, at Indian Bank, Zonal office Mumbai South, Premises department, 18th floor, F Wing at Maker Tower, Cuffe Parade, Mumbai 400 005. |
| 16. | Date of Opening of Financial bid (Manually) | Will be intimated later to the qualified Tenderers only. |
| 17. | Defect Liability Period | 12 Months from the date of Virtual Completion of work. |

**Note:**

1. The bank reserves the right to reject any or all tenders/bids without assigning any reason therof.
2. The tenders shall be submitted in two envelopes. The envelope No. 1 shall be marked as Technical Bid and shall contain Technical Bid of the tender, EMD in the form of Demand Draft/ Pay Order, Prequalification application and any other matter.

The envelope No. 2 shall be marked as Price Bid

1. Envelope No. 1. Will be opened on the due date of opening. Envelope No. 2 of the contractors will be opened at later date (to be intimated subsequently) and of those whose prequalification application meets with eligibility criteria of the advertisement and the requirement of EMD and the terms/ conditions submitted, acceptance of technical bid, etc.

1. Tenders are to be submitted in one sealed Envelope Cover Enclosing Therein the Envelope No. 1 and Envelope No.2 Duly Superscribed “Tender for Proposed Building for Indian Bank of India for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”.

1. The tenderer must use only the tender forms issued for the purpose to fill in the rates. Intimation of tender quoted by letter, telegram/ telex will not be acceptable. The tender must be dropped in a tender box. Delivery of the tender through courier/ post shall be avoided and any disputes arising thereof shall not be entertained.
2. The rates quoted by the Tenderer shall be based only on the specifications and conditions of the tender documents.
3. Bank is not liable to make any payment to tenderers either for inspection of site or for preparation to submit the tender/bid, regardless of the condut or outcom of the bidding process.
4. Bank reserves the right to cancel the tender of the bidder who fails to submit their tender in the prescribed format of bank.
5. The Companies who are registered with Micro, Small & Medium Enterprises and also those having valid NSIC certificate under Government Store Purchase Programme having certificate clearly indicating the amount of “Quantitative Capacity Per Annum” (amount of Quantitative Capacity Per Annum shall be more than the estimated cost of work) are exempted from the submission of Tender document fee/EMD on submission of requisite proof in the form of valid certification from MSME and NSIC.
6. In case of postal delivery, the tenderer has to ensure that tender is reached before the due date and time and dropped in the tender box. The Bank will not be responsible for damage in the transit and delay of receipt of tender, if any or sent by a special messenger. Tender received late shall be rejected.
7. Every page of the tender documents should be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the General and Special Conditions of Contract, Specifications etc. as laid down. Any tender with any of the documents not so signed will be subjected to rejection.
8. No consideration will be given to a tender received after the time stipulated above and no extension will be allowed for submission of the tender.
9. This notice inviting tenders, the conditions of tender and the duly completed form of tender etc. will form part of the Agreement to be executed by the successful tenderer with the Bank.

**DEPUTY ZONAL MANAGER**

Indian Bank, Zonal office Mumbai South,

18th floor, F Wing at Maker Tower,

Cuffe Parade, Mumbai 400 005.

Phone No 022-22151871

Email: **zo.mumbai.expprem@indianbank.co.in**

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| --- |
| **PRE QUALIFICATION**  **DOCUMENT**  **FOR THE**  **PROPOSED STRUCTURAL REPAIRS, RENOVATION, FLOORING WORK, ELECTRICAL WORK & PAINTING WORKS**  **INDIAN BANK OFFICERS QUARTERS**  **MULUND BUILDING**  **NEAR SANGEETA SOCIETY,**  **Dr. R.P. ROAD,**  **MUMBAI 400 080** |

**Sub: PROPOSED STRUCTURAL REPAIRS, RENOVATION, FLOORING WORK, ELECTRICAL WORK & PAINTING WORKS INDIAN BANK OFFICERS QUARTERS MULUND BUILDING**

The intending bidders shall fulfill the following minimum **Criteria for pre-qualification** bidding for the above jobs: -

**A. 1.0 EXPERIENCE**

|  |  |  |
| --- | --- | --- |
| **S.no** | **Eligible Work** | **Value** – **Rs. in Crores** |
| 1 | **Three** similar (equal to 40%) completed works each costing not less than | 1.07 |
| 2 | **Two** similar (equal to 50%)completed works each costing not less than | 1.30 |
| 3 | **One** similar (equal to 80%)completed work each costing not less than | 2.04 |

In the Last five years ending 31.3.2020

2.0 Similar work shall mean “Executing RCC Structural repair works, renovation, painting works and Façade works for Multistoried RCC Buildings of atleast GF + 5 floors / Institute Buildings / Large Office spaces / Hospitals / Industrial Buildings or equivalent and Residential Buildings” including the scope of work mentioned ` above, executed in India. Eligible bidders have to submit the TDS certificate issued for the PQ work executed by them along with the Technical bid.

The bidder have One similar WORk shall be completed in any PSU/PSB/ GOVT Body.

3.0 **TURNOVER:** Average annual turnover from the works for the last three years ending 31st March 2020 should not be less than **Rs. 2.00 Crores** as per the audited balance sheet.

4.0 **Profit / Loss: -** Tenderer should be a Net Profit making firm and should not have made losses in the last three continuous financial years.

Certificate(s) from Chartered Accountant / Statutory auditors specifying the net worth of the Applicants, as at the close of the preceding financial year,

5.0 **Solvency Certificate: -** The contractor should have a solvency of the amount of Rs**. 2.00 crores** duly certified by any Scheduled Bank **obtained on or after 01.01.2020**

**B.Other conditions**

Seal and Signature of the Tenderer

1.0 Interested parties meeting the above Tender criteria can download the tender documentfrom banks website [www.indianbank.co.in/tenders](http://www.indianbank.co.in/tenders) and submit experience profile, proof of meeting the above criteria, attested copies of completion / work in progress certificates from the clients, audited certified balanced sheet for the last 3 (three) years, EPF /GST, Registration as Contractor with various PSUs, State PWDs, CPWD, MES, Railways and Autonomous Bodies, details of Technical and Administrative employees, etc., along-with duplicate copy of tender documents including drawings. Application not accompanied by any of the above documents and EMD will be rejected at the discretion of Indian Bank.

2.0 No Joint Venture or consortium of firms shall be allowed.

3.0 Indian Bank reserves the right to verify the authenticity of the documents submitted by the contractors. Indian Bank also reserves the right to reject any or all applications, split the works or cancel the process without assigning any reason whatsoever may be.

4.0 The Tender Application along with its enclosures have to be submitted in duplicate.

5.0 The Panel of pre-qualified contractors shall be initially valid for three year. However Indian Bank reserves the right to curtail or extend at its sole discretion.

6.0 The duly filled in application shall be submitted in a sealed envelop till **28/12/2020**    
 **due date and 03:00 PM** at Indian Bank, Zonal office Mumbai South, premises department,18th floor , maker Tower-F, cuffe parade, Mumbai- 400 005.

Superscribing “Tender document for **STRUCTURAL REPAIRS, RENOVATION, FLOORING WORK, ELECTRICAL WORK & PAINTING WORKS INDIAN BANK OFFICERS QUARTERS MULUND BUILDING**

**DEPUTY ZONAL MANAGER**

Indian Bank, Zonal office Mumbai South,

18th floor, F Wing at Maker Tower,

Cuffe Parade, Mumbai 400 005. Phone No 022-22151871

**SECTION I**

Seal and Signature of the Tenderer

**INSTRUCTIONS TO TENDERERS**

**General**

1. **SCOPE OF TENDER BID**

1.1 The Employer, as defined in the Tender document, hereinafter called “the Owner,” wishes to receive tender documents.

1.2 Throughout these bidding documents, the terms “bid” and “tender” and their derivatives (“bidder”/“tenderer”), “bidered /tendered”, “bidding”/“tendering”, etc. are Synonymous. Day means calendar day. Singular also means plural.

1.3 The approximate Estimated Value of the works is as indicated in the tender document

**2.0 ELIGIBLE TENDERERS**

**2.1** This Invitation to Tender bid is open to all experienced and reputed Structural repair and façade work Contractors whether Individual or Sole Proprietor, Partnership firm, Private limited, or Public limited Company who satisfy the qualifying criteria. Joint ventures are not accepted.

**2.2** The tenderers are required to forward the documents as indicated in the tender documents.

**3.0 QUALIFYING CRITERIA**

As given in Page No. 8 of this tender document.

Additional Requirement : Even though the tenderers meet the above qualifying criteria, they are liable to be disqualified if they have

(a) Made misleading or false representation in the forms, statements and attachments in proof of the qualification requirements;

(b) Records of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc.

(c) Their business banned by any Central Govt. Department/Public Sector

Undertakings or Enterprises of Central Govt.

(d) Not submitted all the supporting documents or not furnished the relevant details as per the prescribed format.

(e) Any one of the partners ( in case of partnership firm) or any Directors in case of pvt ltd., or public ltd firm being convicted by a Court of law.

3.1 Tenderer shall submit the general information about them as per ProformaNo-I

3.2 Tenderer shall submit the list of major plant & machinery available with the firm as per Proforma No.- II

**4.0 SITE VISIT**

4.1 The tenderer is advised to visit **(upon prior approval),** and examine the Site of Works and its surroundings and obtain for itself on its own responsibility and cost all information that may be necessary for preparing the bid and entering into a contract for construction of the Works.

4.2 The tenderer and any of its personnel or agents will be granted permission by the

Employer /Owner to enter upon its premises and lands for the purpose of such visit **(upon prior approval),** but only upon the express condition that the tenderer, its personnel, and agents, will release and indemnify the Employer/Owner and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

4.3 Before submitting a Bid, the Tenderer shall be deemed to have satisfied himself by

Seal and Signature of the Tenderer

actual inspection of the site and locality of the works, Traffic conditions/restrictions, Availability of parking space, Transportation of materials that all conditions liable to be encountered during the execution of the works are taken into account and that the rates entered in the Price Bid document are adequate and all inclusive for the completion of work to the entire satisfaction of the Employer/Owner.

**5.0 BID OPENING**

5.1 Part-I of the Bid (Technical Bid) will be opened at the address and (the date and

time intimated in the Notice Inviting tender (NIT)) mentioned in “Tender document” in presence of Tenderers or authorized representatives of Tenderers who wish to attend the opening of Bids.

**6.0 PROCESS TO BE CONFIDENTIAL**

6.1 Information relating to the examination, clarification, evaluation and comparison of

bids, and recommendations for Tender shall not be disclosed to tenderers or any of

their persons not officially concerned with such process until the Tender process is finalized.

**7.0 EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS**

7.1 The Employer shall examine the bids to determine whether they are complete, whether the documents have been properly signed and whether the bids are generally in order, and all documents as per tender document have been submitted.

7.2 Prior to the detailed evaluation, Employer shall determine whether each bid is of acceptable quality, is generally complete and is substantially responsive to the tender documents. For purposes of this determination, a substantially responsive bid is one that confirms to all the documents as specified in the Tender document without material deviations, objections, Conditionality or reservation.

A material deviation, objection, conditionality or reservation is one;

a) That affects in any substantial way the scope, quality or performance of the contract.

b) That limits in any substantial way, inconsistent with the bidding documents, the Employers’ rights or the successful Tenderer’s obligations under the tender document or

c) Whose rectification would unfairly affect the competitive position of other Tenderers who are presenting substantially responsive bids.

7.3 If a bid is determined to be not substantially responsive, it shall be rejected by the

Employer.

**8.0 EVALUATION OF TENDER BIDS**

Seal and Signature of the Tenderer

8.1 The bids, which are determined as substantially responsive, shall be evaluated based

upon the criteria as given in qualifying criteria.

8.2 No Tenderer is permitted to canvass to Employer on any matter relating to this Bid. Any Tenderer found doing so is liable to be disqualified and his bid is liable to be rejected.

8.3 The Employer may visit few of the works completed by the tenderers, whom they

claim satisfying the eligibility criteria ( As a part of tender process).

**9.0** The application should be type-written. The applicant should sign and stamp each page of the application.

**10.0** Overwriting should be avoided. Correction, if any should be made by neatly crossing out, initialing, dating and rewriting. Pages of the Tender documents are numbered. Additional sheets, if any, added by the contractor, should also be numbered by him.

**11.0** Any information furnished by the applicant found to be incorrect either immediately or at a later date, would render him liable to be debarred from Tender / tendering / taking up of work in Indian bank. If such applicant happens to be pre-qualified/ enlisted contractor, his name shall be removed from the pre-qualified list of contractors.

**12.0** All information called for in the enclosed forms should be furnished against the relevant columns. If for any reason, information is furnished on a separate sheet, this fact should be mentioned against the relevant column. Even if no information is to be provided in a column, a 'NIL' or 'NO SUCH CASE' entry should be made in that column. If any particulars! Query is not applicable in case of the applicant, it should be stated as "not applicable". The applicants are· cautioned that not giving complete information called for in the application forms or not giving it in clear terms or making any change in the prescribed forms or deliberately suppressing the information may result in the applicant being rejected. Applications/Tender document submitted through Email and Fax without processing fees will not be entertained. The Application/Tender document received after the due date and time of submission shall not be considered.

13. Rates should be quoted both in figures and words in columns specified. All erasures and alterations made while initials of the tenderer must attest filling the tender. Overwriting of figures is not permitted. Failure to comply with either of these conditions will render the tender invalid and it will be the option of Indian Bank of India to accept or reject the tender. No request of any change in rate or conditions after opening of the tender will be entertained.

14) In the case of figures, the word Rs. should be written before the figures of rupees and the word ‘P’ written after the decimal figures e.g. Rs. 3.25 P. In the case of words, the word Rupee should similarly precede and the words "Paise only" should be written at the end, closely following each the Item rate. The word "only" should not be written in the next line unless the rate quoted is in whole Rupees closely followed by the word "only". The amount should invariably be upto two decimal places.

15) The different Schedules should be filled as follows:

(a) The “Rate" Column wherever applicable to be legibly filled in ink in both figures and words. (b) The "Amount" Column also to be legibly filled in ink in both figures and words. (c) All corrections to be initialed. (d) No over writing is allowed. (e) The figure of Item of rate shall be legibly filled in ink in both figure and words.

16) Errors in the bill of quantities shall be dealt with in the following manner.

a. In the event of any discrepancy between the rates quoted in words and the rates in figures the former shall prevail. b. In the event of an error occurring in the amount column of the bills of quantities as a result of the wrong extension of the unit rate and the quantity, the unit rate shall be regarded, as firm and extension shall be amended on the basis of the rates. c. All the errors in totaling in the amount column and in carrying forward the totals shall be corrected.

5) The tender shall be signed and dated at all places provided therein. Also all pages, drawings and corrections/ alterations shall be initialed. The tender submitted on behalf of a firm shall be signed by all the partners of the firm or by a partner who has the necessary authority on behalf of the firm to enter into the proposed contract. Otherwise the tender may be rejected by Indian Bank.

17. The time allowed for completion of works is 09 months from the date of commencement of the work is reckoned from the tenth day from the date of Letter of Intent. Time shall be considered the essence of contract.

7) It shall be the responsibility of the contractor to arrange for water and electricity required for completing construction. If water is available with the Bank, the same will be supplied to the contractor by recovering 1% of the value of work done. However, contractor will have to make arrangement of pipeline for distributing water. Contractor to make own arrangement of electricity and pay tariff to the electricity board. In case the Bank is supplying electricity, the contractor will have to install separate energy meter and pay the charges as per its consumption

This contract shall be anItem Rate contract. The Contractor shall be paid for actual quantity of work done, as measured at site including any deviation plus or minus. The rate of any non-schedule items of work shall be decided as mentioned in the conditions of contract.

The successful tenderer shall be bound to implement the Contract and mobilize and sign specified agreements within 21 days from the date of acceptance of work order.

The tender drawings exhibited/enclosed are preliminary drawings intended for the guidance of the Contractor only. They may be subject to revision and alteration without vitiating any of the terms of the contract and the Contractor shall be bound to execute the works as shown on the final drawings without claiming any extra payment.

17) No correspondence will be entertained in respect of this tender other than any clarifications strictly pertaining to this tender.

18) The tender price quoted by a tenderer shall be kept strictly confidential and shall not be divulged to any other party even approximately before the time limit for delivery of tender. The only exception be for obtaining an insurance quotation, you may give your insurance company or agent any essential information they ask for, so long as it is done in strict confidence. No information about other's tender price should be obtained and no arrangement with anyone else should be made whether or not he submit the tender.

19) For electrical, sanitary, water supply and drainage works, tenderers must possess respective valid licenses from the competent authority of the area where the site is located.

20) Contractor should sign at the end of every page prior to submitting the tender.

21) Conditional tenders will be summarily rejected.

22) COMPLETION PERIOD OF THE PROJECT WILL BE 09 months.

**Proforma - I**

**General Information**

All individual / firms applying for pre-qualification are requested to complete the information in this form.

|  |  |  |
| --- | --- | --- |
| 1 | Name of Tenderer |  |
| 2 | Head Office Address |  |
| 3 | Address on which Correspondence should be done. |  |
|  | Tel. No. |  |
|  | Mobile no. |  |
|  | Fax No. |  |
|  | E-mail address |  |
| 4 | Place of incorporation / registration |  |
| 5 | Constitution of tenderer |  |
| i) | Specify, if the tenderer is |  |
|  | a) An individual |  |
|  | b) A proprietary firm |  |
|  | c) A firm in partnership |  |
|  | d) A Limited Company or Corporation |  |
| ii) | Attach a copy of Proprietorship or Partnership Deed or Article of Association or  Incorporation of Company as the case may be |  |
| 6 | Bank solvency |  |
| 7 | Turn Over for the years given below |  |
|  | 2017 - 2018 |  |
|  | 2018 - 2019 |  |
|  | 2019 - 2020 |  |
| 8 | Give particulars of registration with Govt. / Semi Govt. / Public Sector Undertakings / Local Bodies. |  |
| 9. | Other details:  a) EPF No.  b) Labour license no  c) PAN No.  d) GST Registration No. (Copies to be enclosed) |  |
| 10. | Any other information considered necessary but not included above |  |
| 11. | Names and Titles of Directors and officers with designation to be concerned with this work with Designation of individuals authorized to act for the  organization |  |
| 12. | Was the applicant ever required to suspend works for a period of more than six months continuously after commencement of works. If so, give the name of the project and give reasons thereof. |  |
| 13. | Has the applicant or any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion?  If so, give the name of the project and give reasons thereof. |  |
| 14. | Has the applicant or any constituent partner in case of partnership firm, ever been debarred / black listed for tendering in any organization at any time? If so, give details |  |
| 15. | Has the applicant or any constituent partner in case of partnership firm, ever been convicted by a court of law?  If So, give details |  |
| 16. | Detailed description and value of works successfully completed during the last five years as mentioned in Page no. 8 |  |
| 17 | Furnish names and address of previous organization for which you have executed similar work in the recent past (At least three) |  |

**Note: Only self attested copies to be furnished.**

**Date & Place Signature & seal of the applicant**

**PROFORMA - II List of major Plant and Machinery in possession of the firm**

Seal and Signature of the Tenderer

|  |  |  |  |
| --- | --- | --- | --- |
| S. No. | **Name of Plant & Machinery / equipment** | **Nos. Available Owned** | **\*Other than col. no. C** |
| **A** | **B** | **C** | **D** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |

**Signature & seal of the applicant**

Date & Place Note:

\* In case of any arrangement for getting the equipment on lease, etc.,

authenticated proof of the same is to be submitted. Use separate sheets for providing more information.

**PROFORMA II(a)**

**Seal and Signature of the applicant**

Seal and Signature of the Tenderer

**DETAILS OF KEY TECHNICAL AND ADMINISTRATIVE PERSONNEL EMPLOYED BY**

**THE FIRM / COMPANY**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S.no** | **Designation** | **No of staffs** | **Names** | **Qualification** | **Professional**  **Experience** | **Years of**  **Experience in**  **this firm** |
|  |  |  |  |  |  |  |
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**Date and Place**

**PROFORMA III**

Seal and Signature of the Tenderer

**FINANCIAL INFORMATION**

I Financial Analysis – Details to be furnished duly supported by figures in Balance Sheet/Profit

and Loss Account for the last three years ended 31.03.2020 duly certified by the Chartered Accountant, as submitted by the applicant to the Income-Tax Department (Copies to be attached). If the audited statement as of 31.03.2020 is not available, preceding 3 years statements may be furnished. Statement as on 31.03.2020 may be submitted immediately on finalization.

-----------------------------------------------------------

FINANCIAL YEARS 17-18 18-19 19-20

-----------------------------------------------------------

|  |  |
| --- | --- |
| (i) | Gross Annual turn-over in Works: mentioned in the NIT  Profit or  Loss |
|  |
| (ii) |
|  |
| (iii) Financial position: | |
| (a) | Cash |
| (b) | Current Assets |
| (c) IV) | Current Liabilities  (a) Net Working capital (b-c) (b)Current Ratio:  Current Assets/Current Liabilities (b/c) |

(c) Acid Test Ratio:

Quick Assets/Current Liabilities (a/c)

|  |  |
| --- | --- |
| V. VI. VII. | Income Tax clearance Certificate  Solvency certificate from Bankers (Scheduled Bank) of Applicant. Financial arrangements for carrying out the proposed work |

Date and Place

**SIGNATURE OF APPLICANT(S) Signature of Charted Accountant with seal of the Applicant**

**PROFORMA IIIA**

Seal and Signature of the Tenderer

**LIST OF SIMILAR WORKS SATISFYING QUALIFICATION CRITERIA**

**COMPLETED DURING THE LAST 5 YEARS**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.No | Clients  Name &  Address | Name of  the work  &  Location | Scope of  work  carried out by  the  bidder | Agreement/  Letter of  Award No.  & Date | Contract  Value | Date  of  start | Date of  completion | Reasons for  delay in  Completion,  if any | Ref. Or  Document  (with page  no.) in  support of  meeting  Qualification  Criterion |
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**PROFORMA IIIB**

Seal and Signature of the Tenderer

LIST OF WORKS ON HAND

Seal and Signature of the Tenderer

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S.No | Clients  Name &  Address | Name of  the work  & Location | Scope of  work | Agreement/ Letter of Award No.  & Date | Contract  Value | Date  of  start |
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**PROFORMA - IV**

Seal & Signature of the Tenderer

**Certificate of Credit Facility**

**(Solvency) (On Bank**’**s letter Head)**

This is to certify that M/s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , is a reputed firm / company with a good financial standing.

The firm / company is enjoying a fund based credit facility of Rs. \_\_\_\_\_\_\_\_\_\_\_ to meet its working capital requirements.

**Signature**

**Name, Designation &**

**Address of Bank**

**BANK**’**S SEAL**

**NOTE: The above certificate shall be from Scheduled Bank.**

**PROFORMA V**

**PERFORMANCE REPORT FOR WORKS REFERRED TO IN PROFORMAIII (A)**

1. Name of the work / Project & Location.

2. Scope of work.

3. Agreement No.

4. Estimated Cost

5. Tendered Cost

6. Value of work done

7. Date of Start

8. Date of completion

a. Stipulated date of completion.

b. Actual date of completion.

9. Amount of compensation levied for delayed Completion if any.

10. Performance report based on quality of work, Time Management, and Resources : Very Good/Good/Fair/Poor

**Date and Place**

**SUPERINTENDING ENGINEER /**

**CHIEF PROJECT MANAGER**

**OR EQUIVALENT.**

**SPECIAL INSTRUCTIONS TO TENDERERS**

Seal and Signature of the Tenderer

**1. Time of Completion, Extension of Time & Progress Chart**

*Time of Completion:*

The entire work is to be completed in all respects within the stipulated period of 9 months. The work shall deem to be commenced within fifteen days from the date of issue of Work order or date of handing over of site, whichever is later. Time is the essence of the contract and shall be strictly observed by the Tenderer.

The work shall not be considered as complete until the Architects / Structural Consultant have certified in writing that this has been completed and the Defects Liability Period shall commence from the date of such certificate.

*Extension of Time:*

If in the opinion of the Indian Bank/Architects / Structural Consultant / /Project Management Consultants the works be delayed (a) by reason of any exceptionally inclement weather, or (b) by reason of instructions from the Indian Bank in consequence of proceedings taken or threatened by or disputes, with adjoining or neighboring owners or (c) by the works, or delay, of other Tenderers or tradesmen engaged or nominated by the Indian Bank and not referred to in the specification or (d) by reason of authorized extra and additions or (e) by reason of any combination of strikes or lock-out affecting any of the building trades of (1) from other causes which the Indian Bank may consider being beyond the control of the Tenderer, the Indian Bank at the completion of the time allowed for the contract shall make fair and reasonable extension of time for completion in respect there for. In the event of the Indian Bank failing to give possession of the site upon the day specified above the time of completion shall be extended suitably.

In case of such strikes or lockouts, as are referred to above, the Tenderer shall, immediately give the Indian Bank, written notice thereof. Nevertheless the Tenderer shall use his best endeavors all that to prevent delay, and shall do all that may be reasonably required to the satisfaction of the Indian Bank to proceed with the works and on his doing so, it will be ground of consideration by the Indian Bank for a extension of time as above provided. the decision of the Indian Bank as to the period to be allowed for an extension of time for completion hereunder (which decision shall be final and binding on the Tenderer) shall be promulgated at the conclusion of such strike or lock-out and the Indian Bank shall then, in the event of an extension being granted, determine and declare the final completion date. The provision in clause 5 with respect to payment of liquidated damages shall in such case, be read and construed as if the extended dated fixed by the Indian Bank were substituted for and the damage shall be deducted accordingly.

***Progress of Work:***

During the period of construction, the Tenderer shall maintain proportionate progress on the basis of a Programme Chart submitted by the Tenderer immediately before commencement of work and agreed to by the Indian Bank / Architects / Structural Consultant / Structural Consultant . Tenderer should also include planning for procurement of scarce material well in advance and reflect the same in the Programme Chart so that there is no delay in completion of the project.

**2. Defects Liability Period (DLP)**

Seal and Signature of the Tenderer

a) It must be realized that this period is for exposure of “latent defects” such as settlements, shrinkages or expansion cracks, undue weathering and wear due to faulty material and workmanship.

b) The DLP commences from the certified date of Virtual Completion issued by the Architects / Structural Consultant / Structural Consultant . DLP – 1 year from the Date of issue of Virtual Completion Certificate for the work by Architects / Structural Consultant / Structural Consultant .

c) Whenever the Indian Bank is of the view that the defects in the workmanship and/or materials used are likely to be apparent only over a long period, the Defect Liability Period may be extended as deemed fit.

**3. Date of Commencement**

Normally, Date of commencement shall be either 15 Days from the Work order issued to the Tenderer or the day on which Tenderer is instructed to take possession of the site, Whichever is later.

**4. Date of Completion**

Date of completion shall be arrived at after adding the time allowed for the execution of the work to the date of commencement of work.

**5. Period of Final Measurement**

The period of final measurement after completion shall be made taken into account the complexity of the work and staff available for carrying outmeasurements.

All hidden works shall have already been measured as the work progressed in presence of Tenderers, Indian Bank, Architects / Structural Consultant and respective specialized consultants to check up the quality and method of installation. It should be noted that unless a longer period is stipulated, the condition of contract generally lays down three months (maximum) from the date of completion of the contract as the period of final measurement. Even though the maximum period of three months is mentioned, it shall be endeavored to complete the measurements as expeditiously as possible.

6. **Period of Honoring Interim Certificate**

The period shall be Fifteen days from the date of receipt of the certificate from the Architects / Structural Consultant along with M Book only signed by the Tenderer consultants & Architects / Structural Consultant .

**7. Period of Honoring Final Certificate**

The period shall be one month from the date of receipt of the final bill certificate from the Architects / Structural Consultant along with M book duly signed by Tenderer, Consultant and Architects / Structural Consultant and statutory Certificates wherever necessary along with as built drawings of the works executed. No due certificate from self as well as from the sub agencies involved by the main contractor should be produced to the bank at the time of submitting final bill by the main contractor.

**8. Retention Money**

The retention percentage (I.e. deduction from interim bill) shall be 5% of the

Gross value of each interim bill. The maximum amount of retention money shall be the balance amount of the Total Security Deposit. 50% of the retention amount will be refunded to the Tenderer on completion subject to

the following:

 Issue of Virtual Completion Certificate by the Architects / Structural Consultant .

Tenderer’s removal of his materials, equipment, labour force, temporary sheds/stores etc. from the site. (excepting for a small presence required if any for the Defect Liability Period and approved by the Indian Bank) The remaining 50% of the amount may be refunded 14 (Fourteen)

days after the end of defects liability period provided he has satisfactorily carried out all the works and attended to all defects in accordance with the conditions of the Contract, including site clearance.

**9. Receiving, Opening and Recording of Tenders**

Part-A (Technical bid) has to be submitted in duplicate with one set of drawings. The tenderers are required to submit the tender documents marked “*Original*” and “*Duplicate*” in Part-A.

Part-A tender will be opened at **15.30** hours on the same day as the last day of the receipt. In case of postal delivery, the tenderer has to ensure that the tender is received before the due date and time. The Indian Bank will not be responsible for the damage in transit and delay in receipt of tender if any. Further, Indian Bank will not entertain any claims/correspondences in this matter.

**After technical evaluation, intimation will be given to all qualifying bidders about the date, time of opening of Manual Price bid.**

**GENERAL CONDITIONS OF CONTRACT**

Seal and Signature of the Tenderer

Except where provided for in the description of the individual items in the schedule of quantities and in the specifications and conditions laid down hereinafter and in the Drawings, the work shall be carried out as per standard specifications and under the direction of Architects / Structural Consultant s.

**1. Interpretation**

In construing these conditions, the specifications, the schedule of quantities, tender and Agreement, the following words shall have the meaning herein assigned to him except where the subject or context otherwise requires:

1. Indian Bank: The term Indian Bank shall denote Indian Bank with their Zonal office Mumbai South at 18th Floor, Maker tower F wing cuffe Parade Mumbai 400 005 and any of its employees representative authorized on their behalf.
2. Tenderer: The term ‘Tenderer’ shall mean the individual or firm or company whether incorporated or not, undertaking the work and shall include legal representative(s) of such individuals or persons composing such firm or company or successors of such firm or company as the case may be and permitted assigns of such individual or firm or company.
3. Site: The site shall mean the site where the works are to be executed as shown within boundary in red border on the site plan including any building and erections thereon allotted by the Indian Bank for the Tenderer’s use.
4. Drawings: The work is to be carried out in accordance with drawings, specifications, the schedule of quantities and any further drawings which may be supplied or any other instruction, which may be given by the Indian Bank during the execution of the work.

All drawings relating to work given to the Tenderer together with a copy of schedule of quantities are to be kept at site and the Architects / Structural Consultant shall be given to such drawings or schedule of access whenever necessary.

In case any detailed Drawings are necessary Tenderer shall prepare such detailed drawings and or dimensional sketches there for and have it confirmed by the Indian Bank/ Architects / Structural Consultant / Structural Consultant /PMC as case may be prior to taking up such work.

The Tenderer shall ask in writing for any clarifications.

1. “The Works” Shall mean the work or works to be executed or done under this contract.
2. “Act of Insolvency” shall mean any act as such as defined by the Presidency Towns Insolvency act or in Provincial Insovency Act or any amending Statutes.
3. “The Schedule of Quantites” shall mean the schedule of quantities as specified and forming part of this contract.
4. “Priced Schedule of Quantities” shall mean the schedule of quantities duly priced with the accepted quoted rates of the Tenderer.

**2. Tenders**

**a) Technical Bid**

The entire set of tender paper issued to the tenderer should be submitted fully signed on the every page. Signature will indicate the acceptance of the tender papers by the tenderer.

**b) Price Bid - The price should be quoted in the Price Bid format attached to this bid.**

The schedule of quantities shall be filled in as follows:

a) The "Rate" column to be legibly filled in ink both English figures and English words.

b) Amount column to be filled in for each item and the amount for each sub head as detailed in the" Schedule of Quantities”.

c) All corrections are to be initialed.

d) The "Rate Column" for alternative items shall be filled up.

e) The" Amount" column for alternative items of which the quantities are not mentioned shall not be filled up.

No modifications, writings or corrections can be made in the tender papers by the tenderer, but may at his option offer his comments or modifications in a separate sheet of paper attached to the original tender papers.

The Indian Bank reserves the right to reject the lowest or any tender and also to discharge any or all of the tenders for each section or to split up and distribute any item of work to any specialist firm or firms, without assigning any reason.

The tenderers should note that the tender is strictly on the item rate basis and their attention is drawn to the fact that the rates for each and every item should be correct, workable and self-supporting. If called upon by the Indian Bank/ Architects / Structural Consultant detailed analysis of any or all the rates shall be submitted. The Indian Bank/ Architects / Structural Consultant shall not be bound to recognize the Tenderer's analysis.

The works will be paid for as "measured work" on the basis of actual work done and not as "lump sum” contract, unless otherwise specified.

All items of work described in the schedule of quantities are to be deemed and paid as complete works in all respects and details including preparatory and finishing works involved, directly, related to and reasonably detectable from the drawings, specifications and schedule of quantities and no further extra charges will be allowed in this connection. In the case of lump-sum charges in the tender in respect of any item of works, the payment of such items of work will be made for the actual work done on the basis of lump-sum charges as will be assessed to be payable by the Indian Bank.

The Indian Bank has power to add to, omit from any work as shown in drawings or described in specifications or included in schedule of quantities and intimate the same in writing but no addition, omission or variation shall be made by the Tenderer without authorization from the Indian Bank. No variation shall vitiate the contract. Please also refer to para 9 hereinafter.

Seal and Signature of the Tenderer

The tenderer shall note that his tender shall remain open for consideration for a period as specified in General rules and Instructions under Item no 10. from the date of opening of the price - tender of the tender .

**3. Agreement**

The successful Tenderer is required to sign agreement as may be drawn up to suit local conditions and shall pay for all stamps and legal expenses, incidental thereto.

**4. Permits and Licenses**

Permits and licenses for release of materials which are under Government control will be arranged by the Tenderer. The Indian Bank will render necessary assistance, sign any forms or applications that may be necessary.

The Indian Bank/ Architects / Structural Consultant / PMC shall be indemnified against all Government or legal actions for theft or misuse of cement M.S. rods and any controlled materials in the custody of the Tenderer.

It may be clearly understood that no compensation or additional charges can be claimed by the tenderer for non-availability of such materials in due time on this account or according to his own requirements.

**5. Government and Local Rules**

The Tenderer shall conform to the provisions of all local Bye-laws and Acts relating to the work and to the Regulations etc., of the Government and Local Authorities and of any company with whose system the structure is proposed to be connected. The Tenderer shall give all notices required by said Act, Rules, and Regulations and Bye-laws etc., and pay all fees / fines payable to such authority / authorities for execution of the work involved. The cost, if any, shall be deemed to have been included in his quoted rates, taking into account all liabilities for licenses, fees for footpath encroachment and restorations etc., and shall indemnify the Indian Bank against such liabilities and shall defend all actions arising from such claims or liabilities.

**6. Taxes and Duties**

The tenderers must include in their tender prices quoted for all duties royalties, cess and sale tax or any other taxes or local charges if applicable. GST will be payable extra as applicable.

No extra claim on this account will in any case be entertained.

The tenderer shall keep necessary books of A/C & other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by duly authorized representative of the Indian Bank and or the Engineer-in-charge and further shall furnish such other information / document as the Indian Bank may required from time to time.

**7. Quantity of Work to be executed**

The quantities shown in the schedule of quantities are intended to cover the entire new structure indicated in the drawings but the Indian Bank reserves the right to execute only apart or the whole or any excess thereof without assigning any reason therefore. Variation in the value is however not expected to be more than 25%.

Seal and Signature of the Tenderer

**8. Other Persons Engaged by the Indian Bank**

The Indian Bank reserves the right to execute any part of the work included in this contract or any work which is not included in this contract by other Agency or persons and Tenderer shall allow all reasonable facilities and use of his scaffolding for the execution of such work. The main Tenderer shall extend all cooperation in this regard.

**9. Earnest Money and Security Deposit**

The tenderer will have to deposit an amount of Rs.2,67,000/- (Rupees Two Lakh Sixty seven Thousand Only) in the form of Bankers Demand Draft in favour of “ Indian Bank,” payable at Mumbai at the time of submission of tender as an Earnest Money. The Indian Bank is not liable to pay any interest on the Earnest Money. The Earnest Money of the unsuccessful tenderers will be refunded without any interest soon after the acceptance of the selected tenderder after award of work or after the expiry of the validity period of the tender

Apart from the EMD, retention money shall be deducted from progressive running bills @ 5% of the gross value of each running bill until the Total Security Deposit, i.e., EMD and the retention money equals 7% of the project cost. 50% of the total security deposit shall be released on successful completion of the works and after obtaining Virtual completion certificate from the Architects / Structural Consultant and No Claim certificate by the tenderder to the Indian Bank.

The balance retention amount 50% will be refunded after the end of defects liability period as mentioned in point no.2 of this special condition of contract provided he has satisfactorily carried out all the work and attended to all defects in accordance with the conditions of the contract. No interest is allowed on retention money. A part of the Security Deposit if and as decided by a constituent Indian bank can also be furnished in the form of a Indian bank guarantee on a Indian bank other than that of the constituent Indian bank

**10. Tenderer to provide everything necessary**

The Tenderer shall provide everything necessary for the proper execution of the work according to the intent and meaning of the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from and if the Tenderer finds any discrepancies therein he shall immediately and in writing, refer the same to Indian Bank/ Architects / Structural Consultant PMC whose decision shall be final and binding.

The Tenderer shall provide himself for ground and fresh water for carrying out of works at his own cost. The Indian Bank shall on no account be responsible for the expenses incurred by the Tenderer for hired ground or fresh water obtained from elsewhere.

The rates quoted against individual items will be inclusive of everything necessary to complete the said items of work within the contemplation of the contract, and beyond the unit price no extra payment will be allowed for incidental or contingent work, labour and/or materials inclusive of all taxes and duties whatsoever except for specific items, if any, stipulated in the tender documents.

Seal and Signature of the Tenderer

The Tenderer shall supply, fix and maintain at his own cost, for the execution of any work, all tools, tackles, machineries and equipments and all the necessary centering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, boarding, watching and lighting by night as well as by day required not only for the proper execution and protection of the said work but also for the protection for the public and safety of any adjacent roads, streets, walls, houses, buildings, all other erections, matters and things and the Tenderer shall take down and remove any or all such centering, scaffolding, planking, timbering, strutting, shoring, etc., as occasion shall be required or when ordered so to do, and shall fully reinstate and make good all matters and things disturbed during the execution of the works to the satisfaction of the Indian Bank/ Architects / Structural Consultant / Structural Consultant .

The Tenderer shall also provide such temporary road on the site as may be necessary for the proper performance of the contract, and for his own convenience but not otherwise. Upon completion, such roads shall be broken up and leveled where so required by the drawings unless the Indian Bank shall otherwise direct. The Tenderer shall at all times give access to workers employed by the Indian Bank or any men employed on the buildings and to provide such parties with proper sufficient and if required, special scaffolding, hoists and ladders and provide them with water and lighting and leave or make any holes, grooves etc., in any work, where directed by the Indian Bank as may be required to enable such workmen to lay or fix pipes, electrical wiring, special fittings etc. The quoted rates of the tenderers shall accordingly include all these above mentioned contingent works.

**11. Tools, Storage of Materials, Protective Works and Site Office Requirements**

The Tenderer shall maintain a site office with site engineer to receive instruction notices or communications etc.

All drawings maintained on the site are to be carefully mounted on boards of appropriate size and covered with a coat of approved varnish. They are to be protected from ravages of termites, ants, and other insects.

The Tenderer shall provide at his own cost all artificial light required for the work and to enable other Tenderers and sub-Tenderers to complete the work within the

specified time.

The Tenderer shall use the toilets identified by the Indian bank for use of their workmen and keep the same in a clean and sanitary condition to the satisfaction of the Indian bank / Public Health Authorities and shall cause such latrines and soil to be cleared away whenever necessary and shall make good all the works disturbed by these conveniences.

Every precaution shall be taken by the Tenderer to prevent the breeding of mosquitoes on the works during the construction, and all receptacles; cisterns, water tanks etc., used for the storage of water must be suitably protected against breeding of mosquitoes.

The Tenderer shall indemnify the Indian Bank against any breach of rules in respect of anti-malarial measures.

The Tenderer shall not fix or place any placards or advertisement of any description or permit the same to be fixed or placed in or upon any boarding, gantry , building structure other than those approved by the Indian Bank.

Protective Measures: The Tenderer from the time of being placed in possession of the site must make suitable arrangements for watching, lighting and protecting the work, the site and surrounding property by day, by night, on Sundays and other holidays.

Tenderer shall indemnify the Indian Bank against any possible damage to the building, roads, or members of the public in course of execution of the work.

The Tenderer shall provide necessary temporary enclosures, gates, entrances, etc., for the protection of the work and materials and for altering and adopting the same as may be required and removing on completion of the works and making good all works disturbed.

Storage of materials: The Tenderer shall provide and maintain proper sheds for the proper storage and adequate protection of the materials etc. and other work that may be executed on the site including the tools and materials of sub- Tenderers and remove same on completion. Cement should be stored one feet above the ground level and have raised floor.

Tools: The theodolite levels, steel and metallic tapes and all other surveying instruments found necessary on the works shall be provided by the Tenderer for the due performance of this contract as instructed by the Site Engineer. All measuring tapes shall be of steel and suitable scaffolding and ladders that may be required for safely taking measurement shall be supplied by the Tenderer.

The masteries and the supervisors on the works shall carry with them always a one meter or two meter steel tape, a measuring tape of 3 meters, a spirit level, a plumb bob and a square and shall check the work to see that the work is being done according to the drawing and specifications. The Site Engineer will use any or all measuring instruments or tools belonging to the Tenderers as he chooses for checking the works executed or being executed on the contract. The Tenderer should cover in his rates for making provisions for all reasonable facilities for the use of his scaffolding, tools and plant etc. by sub-Tenderers for their work.

**12. Notice and Patents of Appropriate Authority and Owners**

The Tenderer shall confirm to the provisions of any Acts of the Legislature relating to the work, and to the Regulations and Bye- laws of any authorities, and/or any water, lighting and other companies, and/or authorities with whose systems the structures were proposed to have connection and shall before making any variations from the drawings or specification that may be associated to so conform, give the Indian Bank/ Architects / Structural Consultant written notices specifying the variations proposed to be made and the reasons for making them and apply for instruction thereon. The Indian Bank/ Architects / Structural Consultant on receipt of such intimation shall give a decision within a reasonable time.

The tenderer shall arrange to give all notices required for by the said acts, regulations or bye-laws to be given to any authority, and to pay to such authority or to any public officer all fees that may be properly chargeable in respect of the work and lodge the receipts with the employer.

The tenderer shall indemnify the employer against all claims in respect of patent rights, royalities, damages to buildings, roads or members of public in course of execution of work and shall defend all actions arising from such claims and shall keep the employer saved harmless and indemnified in all respects from such actions, costs and expenses.

**13. Clearing Site and Setting out Works**

The site shown on the plan shall be cleared of all obstructions, loose stone, and materials rubbish of all kinds. All holes or hollows whether originally existing or produced by removal or loose stone or materials shall be carefully filled up with earth well rammed and leveled off as directed at his own cost. The Tenderer shall set out the works and shall be responsible for the true and perfect setting out of the work and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time, any error shall appear during the progress of any part of the work, the Tenderer shall at his own expenses rectify such error, if called upon to the satisfaction of the Indian Bank. The Tenderer shall further set out the works to the alternative positions at the site until one is finally approved and the rates quoted in his tender should include for this and no extra on this account will be entertained.

**14. Tenderer Immediately to Remove All Offensive Matters**

The Tenderer shall keep the foundations and works free from water and shall provide and maintain at his own expenses electrically or other power driven pumps and other plant to the satisfaction of the Indian Bank for the purpose, until the building is handed over to the Indian Bank. The Tenderer shall arrange for the disposal of the water so accumulated to the satisfaction of the Indian Bank and local authority and no claims will be entertained afterwards if he does not include in his rates for the purpose.

**15. Access**

Any authorized representative of the Indian Bank shall at all reasonable times have free access to the works and/or to the, workshops, factories or other places where materials are being prepared or constructed for the work and also to any place where the materials are lying or from where they are being obtained, and the Tenderer shall give every facility to the Indian bank or their representatives necessary for inspection and examination and test of the materials and workmanship. Except the representatives of the Indian Bank no person shall be allowed at any time without the written permission of the Indian Bank.

**16. Materials, Workmanship, Samples, Testing of Materials**

All the works specified and provided for in the specifications or which may be required to be done in order to perform and complete any part thereof shall be executed in the best and most workmanlike manner with materials of the best and approved quality of the respective kinds in accordance with the particulars contained in and implied by the specifications and as represented by the drawings or according to such other additional particulars, and instructions as may from time to time be given by the Indian Bank/ Architects / Structural Consultant during the execution of the work, and to his entire satisfaction.

If required by the Indian Bank/ Architects / Structural Consultant the Tenderer shall have to carry out tests on materials and workmanship in approved materials testing laboratories or as prescribed by the Indian Bank/ Architects / Structural Consultant at his own cost to prove that the materials etc. Under test conform to the relevant I.S. Standards or as specified in the specifications. The necessary charges for preparation of mould (in case of concrete cube) transporting, testing etc., shall have to be borne by the Tenderer. No extra payment on this account should in any case be entertained.

All works to be carried out generally as per BIS Specifications.

Branded items, i.e., BIS compliant items specified in the tender shall not be tested separately. However the other items if approved by Indian bank are subjected to testing as per tender specifications.

All the materials (except where otherwise described) stores and equipment required for the full performance of the work under the contract must be provided through normal channels and must include charge for import duties, sales tax, octroi and other charges and must be the best of their kind available and the Tenderers must be entirely responsible for the proper and efficient carrying out of the work. The work must be done in the best workmanlike manner. Samples of all materials to be used must be submitted displayed to the Indian Bank/ Architects / Structural Consultant when so directed by the Engineer/ Architects / Structural Consultant and written approval from Indian Bank/ Architects / Structural Consultant must be obtained prior to placement of order.

Seal and Signature of the Tenderer

During the inclement weather the Tenderer shall suspend concreting and plastering for such time as the Indian Bank/ Architects / Structural Consultant may direct and shall protect from injury all work when in course of execution. Any damage (during constructions) to any part of the work for any reasons due to rain, storm, or neglect of Tenderer shall be rectified. by the Tenderer in an approved manner at no extra cost.

Should the work be suspended by reason of rain, strike, lock -outs or any other cause, the Tenderer shall take all precautions necessary for the protection of work and at his own expenses shall make good any damage arising from any of these causes.

The Tenderer shall cover up and protect from damage, from any cause, all new work and supply all temporary doors, protection to windows, and any other requisite protection for the execution of the work whether by himself or special tradesmen or sub-Tenderer and any damage caused must be made good by the Tenderer at his own expenses.

The contractor shall prepare for approval of Architects / Structural Consultant the “Co-ordinated

services drawings” for pre-planned openings so that the alterations are reduced to

the minimum.

**17. Removal of Improper Work**

The Indian Bank shall during the progress of the work have power to order in writing from time to time the removal from the work within such reasonable time or times as may be specified in the order of any materials which in the opinion of the Indian Bank / Architects / Structural Consultant are not in accordance with specification or instructions, the substitution or proper re-execution of any work executed with materials or workmanships not in accordance with the drawings and specifications or instructions. In case the Tenderer refuses to comply with the order the Indian Bank shall have the power to employ and pay other agencies to carry out the work and all expenses consequent thereon or incidental thereto as certified by the Indian Bank/ Architects / Structural Consultant shall be borne by the Tenderer or may be deducted from any money due to or that may become due to the Tenderer. No certificate which may be given by the Architects / Structural Consultant shall relieve the Tenderer from his liability in respect of unsound work or bad materials.

**18. Site Engineer/Project Management Consultant:**

The term "Site Engineer/PMC" shall mean the person/agencies appointed and paid by the Indian Bank to superintend the work. The Tenderer shall afford the Site Engineer/PMC every facility and assistance for examining the works and materials and for checking and measuring work and materials. The Site Engineer/PMC shall have no power to revoke, alter, enlarge or relax any requirements of the Tenderer or to sanction any day work, additions, alterations, deviations or omissions or any extra work whatever, except in so far as such authority may be specially conferred by a written order of the Indian Bank.

The Site Engineer/PMC shall have power to give notice to the Tenderer or to his foreman, of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the Indian Bank is obtained. The work will from time to time be examined by the Architects / Structural Consultant / Structural Consultant , Engineer from the Premises Department of the Indian Bank and the Site Engineer if any. But such examination shall not in any way exonerate the Tenderer from the obligation to remedy any defects which may be found to exist at any stage of the work or after the same is complete. Subject to the limitations of this clause the Tenderer shall take instructions only from the Architects / Structural Consultant / Structural Consultant /Indian Bank or his representative.

**19. Tenderer's Employees**

The Tenderer shall employ technically qualified and competent supervisors for the work who shall be available (by turn) throughout the working hours to receive and comply with instructions of the Indian Bank/ Architects / Structural Consultant / Structural Consultant . The Tenderer shall engage at least one experienced Engineer as site-in-charge for execution of the work. The Tenderer shall employ in connection with the work persons having the appropriate skill or ability to perform their job efficiently. The Tenderer shall employ local labourers on the work as far as possible. No labourer below the age of Eighteen years and who is not an Indian National shall be employed on the work.

Any labourer supplied by the Tenderer to be engaged on the work on day-work basis either wholly or partly under the direct order or control of the Indian Bank or his representative shall be deemed to be a person employed by the Tenderer.

The Tenderer shall comply with the provisions of all labour legislation including the requirements of

a) The Payment of Wages Act 1936

b) Indian Bank's Liability Act 1938

c) Workmen's Compensation Act Contract Labour (Regulation & Abolition) Act, 1970 and Central Rules 1971.

d) Apprentices Act 1961

e) Minimum Wages Act 1948

f) Any other Act or enactment relating thereto and rules framed there Under from time to time.

The Tenderer shall keep the Indian Bank saved harmless and indemnified against claims if any of the workmen and all costs and expenses as may be incurred by the Indian Bank in connection with any claim that may be made by any workmen.

The Tenderer shall comply at his own cost with the order of requirement of any Health Officer of the State or any local authority or of the Indian Bank regarding the maintenance of proper environmental sanitation of the area where the Tenderer's laborers are housed or accommodated, for the prevention of small pox, cholera, plague, typhoid, malaria and other contagious diseases. The Tenderer shall provide, maintain and keep in good sanitary condition adequate sanitary accommodation and provide facilities for pure drinking water at all times for the use of men engaged on the works and shall remove and clear away the same on completion of the works. Adequate precautions shall be taken by the Tenderer to prevent nuisance of any kind on the works or the lands adjoining the same.

The Tenderer shall arrange to provide first-aid treatment to the laborers engaged on the works. He shall within 24 hours of the occurrence of any accident at or about the site or in connection with execution of the works, report such accident to the Indian Bank and also to the Competent Authority where such report is required by law. Compliance of labour regulations:

**20. Dismissal of Workmen**

The Tenderer shall on the request of the Indian Bank immediately dismiss from works any person employed thereon by him, who may in the opinion of the Indian Bank be unsuitable or incompetent or who may misconduct himself. Such discharge shall not be the basis of any claim for compensation or damages against the Indian Bank or any of their officer or employee.

**21. Assignment**

The whole of the works included in the contract shall be executed by the Tenderer and the Tenderer shall not directly or indirectly transfer, assign or underlet the contract or any part, share or interest therein nor, shall take a new partner, without written consent of the Indian Bank and no subletting shall relieve the Tenderer from the full and entire responsibility of the contract or from active superintendence of the work during their progress.

**22. Damage to Persons and Property Insurance Etc.**

The Tenderer shall be responsible for all injury to the work or workmen to persons, animals or things and for all damages to the structural and/or decorative part of property which may arise from the operations or neglect of himself or of any sub- Tenderer or of any of his or a sub-Tenderer's employees, whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract. The clause shall be held to include inter-alia, any damage to buildings whether immediately adjacent or otherwise, and any damage to roads, streets, foot paths or ways as well as damages caused to the buildings and the works forming the subject of this contract by rain, wind or other inclemency of the weather. The tenderer shall be responsible for the damages/injury/accidents caused to any public in general / vehicles in general and pay necessary compensation or settlement or whatsoever in this regard.

The Tenderer shall indemnify the Indian Bank and hold harmless in respect of all and any expenses arising from any such injury or damages to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of compensation or damage consequent upon such claim.

The Tenderer shall reinstate all damage of every sort mentioned in this clause, so as to deliver the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damages to the property or third parties.

The Indian Bank shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or accruing from or in respect of any such claim or damages from any sums due or to become due to the Tenderer .

**23. Insurance**

The Tenderer shall arrange to take “Tenderers all risk insurance policy including third party liability”, covering the entire period of contract till virtual completion of the contract (including extended period if any) for the entire scope of works for a risk cover not less than the contract value. The third party insurance shall be for a sum of Rs. 5 Lakh per accident.

The Tenderer shall effect the insurance necessary and indemnify the Indian Bank entirely from all responsibility in this respect. The insurance must be placed with a company approved by the Indian Bank and must be effected jointly in the name of the Tenderer and the Indian Bank and the policy lodged with the latter. The scope of insurance is to include damage or loss to the work and workman due to carelessness accident, including fire, earthquake and floods etc., damage or loss to the contract itself till this is made over in a complete state. Insurance is compulsory and must be effected from the very initial stage.

The Tenderer shall also be responsible for anything which may be excluded from damage to any property arising out of incidents, negligence or defective carrying out of this contract.

Unless otherwise instructed the Tenderer shall insure the works and keep them insured until the virtual completion of the contract against loss or damage by fire and /or earthquake, flood. The insurance must be placed with a company approved by the Indian Bank, in the joint names of the Indian Bank and the Tenderer for such amount and for any further sum if called to do so by the Indian Bank, the premium of such further sum being allowed to the Tenderer as an authorized extra.

The Tenderer shall as soon as the claim under the policy is settled or the work reinstated by the Insurance Company should they elect to do so, proceed with due diligence with the completion of the works in the same manner as though the fire has not occurred and in all respects under the conditions of the contract. The Tenderer in case of rebinding or reinstatement after fire shall be entitled to extension of time for completion as the Indian Bank may deem fit.

**24. Accounts, Receipts & Vouchers**

The Tenderer shall, upon the request of the Indian Bank furnish them, with all the invoices, accounts, receipts and other vouchers that they may require in connection with the works under this contract. If the Tenderer shall use materials less than what he is required under the contract, the value of the difference in the quantity of the materials he was required to use and that he actually used shall be deducted from his dues. The decision of the Indian Bank shall be final and binding on the Tenderer as to the amount of materials the Tenderer is required to use for any work under this contract.

**25. Measurement**

All the Measurements should be taken in the presence of Bank officials/ Architects / Structural Consultant / Structural Consultant . And the measurements shall be countersigned by the Bank officials.

**26. Payments**

All bills shall be prepared by the Tenderer in the form prescribed by the Indian Bank / Architects / Structural Consultant. **Normally one interim bill shall be prepared each month subject to minimum value for interim certificate as stated in these documents.** The bills in proper forms must be duly accompanied by detailed measurements in support of the quantities of work done and must show deductions for all previous payments, retention money, etc.

The Indian Bank/ Architects / Structural Consultant shall issue a certificate after due scrutiny of the Tenderers' bill stating the amount due to the Tenderer from the Indian Bank and the Tenderer shall be entitled to payment thereof, within the period of honoring certificates named in these documents. In case of delay due to some reasons in the processing of such bills for payment, an advance of 75% of the billed Amount may be paid on the request of the Tenderer for the smooth progress of the work. The amount stated in an interim certificate shall be the total value of work properly executed and 75% of invoiced value of material brought to site for permanent incorporation into the work up to the date of the bill less the

amount to be retained by the Indian Bank as retention money vide clause 11 of the general conditions of contract, less TDS, and less installments previously paid under these conditions, provided that such certificate shall only include the value of said material and goods as and from such time as they are reasonably, properly and not prematurely brought to or placed adjacent to the work and then only if adequately protected against weather or other causalities.

The Indian Bank will deduct retention money as per tender conditions.

If the Indian Bank has supplied any materials or goods to the Tenderer, the cost of any such materials or goods will be, progressively deducted from the amount due to the Tenderer in accordance with the quantities consumed in the work.

All the interim payments shall be regarded as payments by way of advance against the final payment only and not as payments 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 re-erected or be considered as an admission of the due performance of the contract, or any part thereof in any respect or the accruing of any claim, nor shall, it conclude, determine or affect in anyway the power of the Indian Bank under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. The final bill shall be submitted by the Tenderer within one month of the date fixed for completion of the work or of the date of certificate of completion furnished by the Site Engineer and payment shall be made after checking the work completely. Payment will be made 75 % against supply of materials & 25 % against erection and commissioning, less statutory deductions.

Indian Bank reserves the right to withhold in part or full payment of bills in case of non-compliance / violation of any terms and conditions stipulated in the agreement. The tenderer shall neither suspend the work nor claim for extension of time for non-payment /withholding of payment on this account and no interest is also payable on the payment withheld/due.

**27. Final Payment**

The final bill shall be accompanied by a certificate of completion from the Consultants & Architects / Structural Consultant / Structural Consultant . Payments of final bill shall be made after deduction of Retention Money, which sum shall be refunded after the completion of the Defects Liability Period after receiving the Indian Bank's/ Architects / Structural Consultant / Structural Consultant ' certificate that the Tenderer has rectified all defects to the satisfaction of the Indian Bank/ Architects / Structural Consultant / Structural Consultant . The acceptance of payment of the final bill by the Tenderer would indicate that he will have no further claim in respect of the work executed.

The contractor has to submit 2 copies of “As built drawings” of A2 or A1 size and CD duly certified by the Architects / Structural Consultant to the Bank along with final bill documents. Along with Every bill the contractor has to submit the photographs of the work executed

**28. ENHANCEMENT IN RATES AND QUANTITY VARIATION**

The tender rates shall be fixed, firm and applicable for any increase or decrease in the tendered quantities. The Employer / Architects / Structural Consultant can increase or decrease any quantities to any extent or even delete particular item as per the site requirements and the contractor shall not be paid anything extra on thisaccount. Nothing extra will be paid by the Indian Bank on account of omission /deletion of items or decrease in the quantity of items. The Bank shall not entertain any claim whatsoever from the contractor on this account.The price of all additional items / non-tendered items will be worked out onthe basis of rates quoted for similar items in the contract wherever existing. Ifsimilar items are not available, the rates for such items will be derived as per standard method of rate analysis based on prevalent fair price of labour,material and other components as required with 15% towards contractor’sprofit and overheads.

**29. UNQUOTED ITEMS**

The bidders to offer their competitive rates for each and every item listed in the Schedule of rates, the bidders who have not quoted for all the items as required in the SORs shall be liable for rejection. In case a bidder who has left certain items unquoted and if they happen to be overall lowest on evaluation, then their offers shall be considered subject to the unquoted items being taken as NIL cost. The bidder shall also give a clear undertaking to the effect that they shall execute the said items (unquoted) free of cost. In the event the bidder refuses the above conditions and insists on additional cost for the unquoted items, then such an offers shall be rejected as invalid.

For Extra works at the time of work in progress the contractor should submit the reasonable rate with the rate analysis and after approval given by the Architects / Structural Consultant / Bank that amount will be given.

**30. ABNORMAL RATES**

The Contractor is expected to quote rate for each items after careful analysis of costs involved for the performance of the complete item consisting all specifications and conditions of the contract. If it is noticed that the rates quoted by the tenderer for any items are unusually high (or) unusually low it will be sufficient cause for rejection of the tender unless the Indian Bank is convinced about the reasonableness of the rate on scrutiny of the analysis for such rate to be furnished by the tenderer on demand. Not with standing anything there in stand, the rate once accepted by the Indian Bank shall be final and shall not be subject to any claim either on account of un-workability of rates or on any other ground whatsoever.

**31. Substitution**

Should the Tenderer desire to substitute any materials and workmanship, he/they must obtain the approval of the Indian Bank/ Architects / Structural Consultant in writing for any such substitution well in advance. Materials designated in this specification indefinitely by such term as "Equal" or "Other approved" etc. specific approval of the Indian Bank/ Architects / Structural Consultant has to be obtained in writing prior to the execution.

**32. Preparation of Building Works for Occupation and Use on Completion**

The whole of the work will be thoroughly inspected by the Tenderer and deficiencies and defects put right. On completion of such inspection the Tenderer shall inform the Indian Bank that he has completed the work and it is ready for inspection. On completion the Tenderer shall clean all windows and doors including the cleaning and oiling if necessary, of all hardware, inside and outside, all floors, stair-cases, and every part of the building. He will leave the entire building neat and clean and ready for immediate occupation and to the satisfaction of the Indian bank.

**33. Clearing Site on Completion**

On completion of the works the Tenderer shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a workman like condition to the satisfaction of the Indian Bank/ Architects / Structural Consultant / Structural Consultant .

The main /Principal contractor is only responsible for the cleanliness of the site/building irrespective of numbers of sub agencies deployed by them to carryout various other works in the tender.

**34. Defects after Completion**

The Tenderer shall make good at his own cost and to the satisfaction of the Indian Bank all defects, shrinkage, settlements or other faults which may appear within 12 months after completion of the work. In default the Indian Bank may employ and pay other persons to amend and make good such damages, losses and expenses consequent thereon or incidental thereto shall be made good and borne by the Tenderer and such damages, loss and expenses shall be recoverable from him by the Indian Bank or may be deducted by the Indian Bank, in lieu of such amending and making good by the Tenderer, deduct from any money due to the Tenderer a sum equivalent to the cost of amending such work and in the event of the amount retained being insufficient, recover that balance from the Tenderer from the amount retained under General Rules and instruction Special Instruction Clause 5 together with any expenses the Indian Bank may have incurred in connection therewith.

**35. Concealed Work**

The Tenderer shall give due notice in writing to the Indian Bank/ Architects / Structural Consultant whenever any work is to be buried in floor / earth, concrete, ceilings or in the bodies of walls or otherwise becoming inaccessible later on, in order that the work may be inspected and correct dimensions taken before such burial, in default whereof the same shall, at the opinion of the Indian Bank/ Architects / Structural Consultant be either opened up for measurement at the Tenderer's expense or no payment may be made for such materials. Should any dispute or differences arise after the execution of any work as to measurements etc., or other matters which cannot be conveniently tested or checked, the notes of the Indian Bank/ Architects / Structural Consultant shall be accepted as correct and binding on the Tenderer.

**36. Escalation**

The rate quoted shall be firm throughout the tenure of the contract (including extension of time, if any, granted) and will not be subject to any fluctuation due to increase in cost of materials, labour, sales tax, octroi, etc. unless specifically provided in these documents.

**37. Idle Labour**

Seal and Signature of the Tenderer

Whatever the reasons may be no claim for idle labour, additional establishment cost of hire and labour charges of tools and plants would be entertained under any circumstances.

**38. Suspension**

If the Tenderer except on account of any legal restraint upon the Indian Bank preventing the continuance of the work or in the opinion of the Indian Bank shall neglect or fail to proceed with due diligence in the performance of his part of the contract or if he shall more than once make default, the Indian Bank shall have the power to give notice in writing to the Tenderer requiring the work to be proceeded within a reasonable manner and with reasonable dispatch, such notice purport to be a notice under this clause.

After such notice shall have been given the Tenderer shall not be at liberty to remove from the site of the works or from any ground contiguous thereto any plant or materials to subsist from the date of such notice being given until the notice shall have been complied with. If the Tenderer fails to start the work within seven days after such notice has been given to proceed with the works as therein prescribed, the Indian Bank may proceed as provided in clause 40 (Termination of Contract by Indian Bank).

**39. Termination of Contract by Indian Bank**

If the Tenderer being a company go into liquidation whether voluntary or compulsory or being a firm shall be dissolved or being an individual shall be adjudicated insolvent or shall make an assignment or a composition for the benefit of the greater Para, in number of amount of his creditors or shall enter into a Deed or arrangement with his creditors, or if the Official Assignee in insolvency, or the Receiver of the Tenderer in insolvency, shall repudiate the contract, or if a Receiver of the Tenderer's firm appointed by the court shall be unable, within fourteen days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Indian Bank that he is able to carry out and fulfill the contract, and if so required by the Indian Bank to give reasonable security therefore. or if the Tenderer shall suffer execution to be issued, or shall suffer any payment under this contract to be attached by or on behalf of and of the creditors of the Tenderer, or shall assign, charge or encumber this contract or any payments due or which may become due to the Tenderer, there under, or shall neglect or fail to observe and perform all or any of the acts matters of things by this contract, to be observed and performed by the Tenderer within three clear days after the notice shall have been given to the Tenderer in manner hereinafter mentioned requiring the Tenderer to observe or perform the same or shall use improper materials or workmanship in carrying on the works, or shall in the opinion of the Indian Bank not exercise such due diligence and make such due progress as would enable the work to be completed within due time agreed upon, and shall fail to proceed to the satisfaction of the Indian Bank after three clear days notice requiring the Tenderer so to do shall have been given to the Tenderer as hereinafter mentioned, or shall abandon the contract, then and in any of the said cases, the Indian bank may notwithstanding previous waiver determine the contract by a notice in writing to the effect as hereinafter mentioned, but without thereby effecting the powers of the Indian Bank of the obligations and liabilities of the Tenderer the whole on which shall continue in force as fully as if the Contract, had not been so determined and as if the works subsequently executed had been executed by or on behalf of the Tenderer (without thereby creating any trust in favour of the Tenderer) further the Indian Bank or his agent, or servants, may enter upon and take possession of the work and all plants, tools, scaffolding, sheds, machinery , steam and other power, utensils and materials lying upon premises or the adjoining lands or roads and sell the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completing the works or by employing any other Tenderers or other persons or person to complete the works, and the Tenderer shall not in any way interrupt or do any act, matter of thing to prevent or hinder such other Tenderers or other persons or person employed from completing and finishing or using the materials and plants for the works when the works shall be completed, or as soon thereafter as conveniently may be, the Indian Bank shall give notice in writing to the Tenderer to remove his surplus materials and plants and should the Tenderer fail to do so within a period of 14 days after receipt by him the Indian Bank may sell the same by Public Auction and shall give credit to the Tenderer for the amount so realized. Any expenses or losses incurred by the Indian Bank in get the works carried out by other Tenderers shall be adjusted against the amount payable to the Tenderer by way of selling his tools and plants or due on account of work carried out by the Tenderer prior to engaging other Tenderers or against the Security Deposit.

Seal and Signature of the Tenderer

**40. Arbitration**

All disputes or differences of any kind whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof of this contract or the rights touching or concerning the works or the execution of maintenance thereof of this contract or the construction remaining operation or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after determination foreclosure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding) shall after written notice by either party to the contract to the other of them and to the Indian Bank hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, the Indian Bank will send within thirty days of receipt of the notice, to the Tenderer a panel of three names of persons who shall be presently unconnected with the organization for which the work is executed.

The Tenderer shall on receipt of the names as aforesaid, select anyone of the persons name to be appointed as a sole Arbitrator and communicate his name to the Indian Bank within thirty days of receipt of the names. The Indian Bank shall there upon without any delay appoint the said person as the Sole Arbitrator. If the Tenderer fails to communicate such selection as provided above within the period specified, the competent Authority shall make the selection and appoint the selected person as the Sole Arbitrator.

If the Indian Bank fails to send to the Tenderer the panel of three names as foresaid within the period specified, the Tenderer shall send to the Indian Bank a panel of three names of persons who shall all be unconnected with either party. The Indian Bank shall on receipt of the named as aforesaid select anyone of the persons names and appoint him as the Sole Arbitrator. If the Indian Bank fails to select the person and appoint him as the Sole Arbitrator within 30 days of receipt of the panel and inform the Tenderer accordingly, the Tenderer shall be entitled to appoint one of the persons from the panel as the Sole Arbitrator and communicate his name to the Indian Bank.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another Sole Arbitrator shall be appointed as aforesaid.

The work under the Contract shall, however, continue during the, arbitration proceedings and no payment due or payable to the Tenderer shall be withheld on account of such proceedings.

Seal and Signature of the Tenderer

The Arbitrator shall be deemed to have entered on the reference on the date he issued notice to both the parties fixing the date of the first hearing.

The Arbitrator may from time to time, with the consent of the parties, extend the time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference referred to him. The Arbitrator shall decide each dispute, in accordance with the terms of the contract and give a reasoned award. The venue of arbitration shall be in Mumbai only as may be fixed by the Arbitrator in his sole discretion.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award including the fees, if any, of the Arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid and may fix or settle and amount of costs to be so paid. The award of the Arbitrator shall be final and binding on both the parties.

Subject to aforesaid the provisions of the “Arbitration and Reconciliation Act 1996” or any statutory modification or re-enactment thereof and the rules made there under, and for the time being in force, shall apply to the arbitration proceeding under this clause.

The Indian Bank and the Tenderer hereby also agree that arbitration under clause shall be a condition precedent to any right to action under the contract with regard to the matters hereby expressly agreed to be so referred to arbitration.

Submitting to Arbitration may be considered as an additional remedy and it does not preclide the parties to seek redress/other legal course.

**41. Integrity Pact**

This Contract will fall under the ambit of “Integrity Pact”, as per Bank’s/ CVC norms. Integrity pact envisages an agreement between the prospective vendors/bidders and the buyer, committing the persons/officials of both the sides, not to resort to any corrupt practices in any aspect/stage of the contract. Only those vendors/bidders who commit themselves to such a pact with the buyer, would be considered competent to participate in the bidding process. In other words, entering into this Pact would be a preliminary qualification.

The essential ingredients of the Pact include:

* Promise on the part of the Principal (Bank) not to seek or accept any benefit, which is not legally available.
* Principal to treat all bidders with equity and reason.
* Promise on the part of the bidders not to offer any benefit to the employees of the Principal not available legally.
* Bidders not to enter into any undisclosed agreement or understanding with other bidders with respect to prices, specifications, certification, subsidiary contracts etc.
* Bidders not to pass any information provided by Principal as part of business relationship to others and not to commit any offence under Prevention of Corruption/ Indian Penal Code Act.
* Foreign bidders to disclose the name and address of agents and representatives in India and Indian Bidders to disclose their foreign principals.
* Bidders to disclose the payments to be made by them to agents / brokers or any other intermediary.
* Bidders to disclose any transgressions with any other company that may impinge on the anti corruption principle.

Integrity Pact, in respect of a particular contract, shall be operative from the date of Integrity Pact is signed by both the parties till the final completion of the contract. Any violation of the same would entail disqualification of the bidders and exclusion from the future business dealings.

The Details of the Independent External Monitor (IEM) empanelled with the Bank, is as follows:

|  |  |
| --- | --- |
| **Shri Brahm Dutt, IAS (Retd)**  **Dutt.brahm@gmail.com** | **Shri Balaraj Joshi**  **balrajjoshi@hotmail.com** |

42. The contractor shall not assign the contract. He shall not sub-let any portion of the contract except with the written consent of the Bank. In case of breach of these conditions, the Bank may serve a notice in writing on the contractor rescinding the contractor whereupon the Security Deposit shall stand forfeited to the Bank, without prejudice to his other remedies against the contractor. Central Govt./ State Govt. organization will not be allowed to sublet the work on back to back basis.

The contractor shall carry out of all the work strictly in accordance with Drawings, details and instructions of the Architects / Structural Consultant , Consultant and the Bank. If in the opinion of the Architects / Structural Consultant , consultant or the Employer, changes have to be made in the design and with the prior approval in writing of the Employer, they desire the contractor to carry out the same, the contractors shall carry out the same without any extra charge. The Bank’s decision in such cases shall be final and shall not be open to arbitration.

43) A Schedule of probable quantities in respect of each work and specifications accompany these special conditions. The Schedule of probable quantities is liable to alteration by omission, deductions or additions at the discretion of the Architects / Structural Consultant / Bank. No claim will be entertained from the contractor on account of loss of profit over revising the tender rates.

44) The Tenderer must obtain for himself on his own responsibility and at his own expenses all the information which may be necessary for the purpose of filling of Tender and for entering into a contract and must examine the drawings and must inspect the site of the work and acquaint himself with all local conditions, means of access to the work, nature of the work and all matters pertaining thereto. No compensation will be paid on account of not getting proper information.

45) The rates quoted in the Tender shall be inclusive of all charges for clearing of site before commencement as well as after completion, water, electrical consumption, meters, doublescaffolding, centering, boxing, staging, planking, timbering and pumping out water, including bailing, fencing, planking, timbering and pumping out water, including bailing, fencing, hoarding, plant and equipment, storage sheds, watching and lighting by night as well as day, including Sundays and Holidays, temporary plumbing and electric supply, protection of the public and safety of adjacent roads, streets, cellars, vaults, open pavements, walls, houses, buildings and all other erections, matters or things and the contractor shall take down and remove any or all such centering, scaffolding, staging, planking, timbering, strutting, shoring, etc. as occasion shall require or when ordered so to do, and fully reinstate and make good all matters and things disturbed during the execution of the work and to the satisfaction of the Bank / Consultant.

46) Time allowed for carrying out the work as mentioned in the Memorandum shall be strictly observed by the contractor and its shall be reckoned from the 15 days after acceptance of order to commence the work or the date of handing over the site to the contractor whichever is later. The work shall throughout the stipulated period of the contract be proceeded with all due diligence and if the contractor fails to complete the work within the specified period i.e. 9 months, he shall be liable to pay compensation as defined in the conditions of contract.

47) The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the case of delays may be, including delays arising out of modifications to the work entrusted to him or in any subcontract connected therewith or delays in awarding contracts for other trades if the project or in commencement or completion of such works or in procuring government controlled or other building materials or in obtaining water and power connections for construction purposes or for the other reasons whatsoever and the Employer shall not be liable for any claim in respect thereof. The Employer does not accept liability for any sum besides the Tender amount, subject to such variations as are provided for herein.

48) The successful Tenderer is bound to carry out any items of work necessary for the completion of the job even though such items are not included in the quantities and rates. Schedule of instructions in respect of such additional items and their quantities will be issued in writing by the Architects / Structural Consultant / consultant with the prior consent in writing of the Bank.

49) The successful Tenderer must co-operate with the other contractors appointed by the Employer so that the work shall proceed smoothly with the least possible delay and to the satisfaction of the Architects / Structural Consultant / Structural Consultant / Consultant.

50) The contractor must bear in mind that all the work shall be carried out strictly in accordance with the specifications made by the Architects / Structural Consultant / Consultant and also in compliance of the requirements of the Authorities concerned and no deviation on any account will be permitted.

51) (i) The rates quoted in the Schedule rates also include the expenditure for providing all the water required for the work and the contractor shall make his own arrangements for the supply of good quality water including obtaining Municipal connection for his labour as well as for construction purpose and all charges shall be borne by him. If Municipal water connection is not available and should it become necessary for the contractor to drill a bore well for obtaining water for construction purposes or to bring water from outside by Tankers, The Bank shall not be liable to pay any charges in connection therewith.

(ii) The rates quoted in the Tender shall also include Electric consumption charges for Power. If no power is available at site, the contractor shall have to make his own arrangement to obtain electric power connection and maintain at his own cost an efficient service of electric light and power and shall pay for the electricity consumed.

(iii) For water and power, the contractor to whom the work is allotted shall maintain the same in good working conditions.

(iv)Contractor for other trades appointed by the Bank shall also be allowed to use water and power available by fixing reasonable charges mutually agreed.

(v) Any dispute regarding payment for water and power charges by the other contractor and or by subsidiary agencies appointed by the Bank to the contractor, who has obtained the temporary connections and allowed sub–connections, will be settled by the Bank / Consultant and the decision taken by the Bank / Consultant shall be final and shall be that of the contractor.

(vi) The Bank as well as the Consultant shall give all possible assistance to the Contractor to obtain the requisite permission from the various authorities, but the responsibility for obtaining the same shall be that of the contractor.

(vii) If no such facility is available at the site of work and if available found inadequate, it shall be the responsibility of the contractor to make his own arrangement for obtaining water and power at his cost.

52) The contractor will have to obtain completion / clearance certificate in respect of services such as water supply, sewerage, etc. The contractor will also obtain permanent water connection for the entire project. The Bank will pay necessary fee to be made to Govt. authorities.

53) The Contractor shall strictly comply with provision of safety code annexed hereto .Contractors are not allowed to remove materials brought at Site against which advances have been paid.

54) The Contractor is to provide at all times during the progress of the works and the maintenance period / defect liability period proper means of access, with ladders, gangways, etc., and the necessary attendance to move and adopt as directed for the inspection or measurement of the works by the Consultant or their representatives.

55) Materials shall be of approved quality and the best of their kind available and shall generally conform to I.S. Specifications. The Contractor shall order all the materials required for the execution of work as early as necessary and ensure that such materials are on site well ahead or requirement for use in the work. The work involved calls for approved standard of workmanship combined with speed and to the entire satisfaction of the Architects / Structural Consultant / consultant. All the material shall be approved by the Consultant / Bank before use. Contractor to arrange samples well in time.

56) The Contractors shall after completion of the work clear the Site of all debris and left over materials at his own expenses to the entire satisfaction of the Bank / Consultant and Municipal or other public authorities.

57) The contractor herewith agrees that in respect of inspection of works by the Chief Technical Examiner of the works, a wing of Central Vigilance Commission and the bills of the contractor including all supporting vouchers, abstract etc. to be made after payment of the bills and if as a result of such audit and technical examination any sum is found to have been over paid in respect of any work done by the contractor under the contract of any work claimed by him to have been done by him under the contract and found not to have been executed or any work is found not to have been executed in accordance with the contract, the contractor shall be liable to refund the amount of over payment made already and it shall be lawful for the Bank to recover the same from him in any manner the Bank deems fit either from any payments due and / or becoming due to the contractor or from the security deposit or retention money or through any further bills and / or final bill or in any other manner whatsoever not excluding through recourse to legal action. The certification of bills / measurements by consultant / Architects / Structural Consultant and Engineer will be scrutinized by the Bank’s Zonal Office / Audit / Vigilance and any deficiency will be corrected accordingly. Contractor cannot insist for payment just because it is signed by consultant / Architects / Structural Consultant / engineer. The contractor herewith agrees to co-operate with the Bank / Consultant while such examinations of works and redo the things without any extra cost to the Bank. It is essential and agreed condition of the contract that any such action taken by the Bank shall deemed to be the fully legal and valid and binding on the contractor.

58) Contractors are requested to note that no extra item or deviated item of work to be executed without taking prior permission, the Bank shall not be held responsible for the payment of such works executed. Contractors will have to submit all the particulars including purchase bills/price list for the materials along with the rate analysis for verification of Item Rates.

59) If it is observed the existing compound wall, gates railings are damaged then the contractors will have to make good the same at their own cost.

60) If contractors fail to pay the taxes/royalties to the Authorities concerned, the Bank reserve their rights to recover the said amount from the amount payable to the contractor and pay the same to the Authorities concerned.

61) Work is to be executed & measurements are to be paid as per the detail specification & description of item given in the Standard Specification Book except for the items which are specifically mentioned in the tender for which the details of item and mode of measurements to be followed as indicated separately in the conditions of contractors.

62) If there are any contracting clauses mentioned in the tender, the interpretation of the same will be done by the Architects / Structural Consultant / consultant. However, the decision of the Bank will be final and binding.

63) The Bidder and their workman/ laborer has to follow all the protocols, instructions, directions received from Bank, Municipal Authority, State Government, Central Government etc issued from time to time for the COVID-19 at their own cost.

Copy of the Agreement to be executed is enclosed.

**SAFETY CODE AND MODEL RULES FOR PROTECTION OF HEALTH AND** **SANITARY ARRANGEMENTS FOR WORKERS**

Safety Measures

All people working shall be provided with safety helmets, safety shoes, goggles, gloves, Safety belts etc., which shall be worn by the workmen while performing work and people working at elevation more than 10 feet shall be always provided with safety belts at contractor’s cost. The safety belts shall be properly fixed to a lifeline always while at work. The Contractor shall provide safe means of access to any working place including provisions of suitable and sufficient scaffolding at various stages during all operations of the work for the safety of his workmen. Contractor shall ensure deployment of appropriate equipment and appliances for adequate safety and health of the workmen and protection of surrounding areas.

The Contractor shall ensure that all their staff and workers including their sub-contractor (s) shall wear Safety Helmet and Safety Shoes. Contractor shall also ensure use of safety belt, Protective goggles, gloves etc. by the personnel as per job requirements.

Contractor shall ensure that a proper Safety Net System and shall be used at appropriate locations. The safety net shall be located not more than feet (9.0 meters) below the working surface at site to arrest or to reduce the consequences of a possible fall of persons working at different heights.

Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

**Personal Safety Equipments:**

All necessary personal safety equipment as considered adequate by the Engineer should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the Tenderer should take adequate steps to ensure proper use of equipment by those concerned.

a) Workers employed on mixing asphalt materials, cement and lime mortars

shall be provided with protective footwear and protective goggles.

b) Those engaged in white washing and mixing or stacking of cement bags or any material that is injurious to the eyes shall be provided with protective goggles.

c) Those engaged in welding works shall be provided with welder’s protective eyesight lids.

d) The Tenderer shall not employ men below the age of 18 years and women on the work of painting with products containing lead or any toxic material in any form.

Wherevermen above the age of 18 are employed on the work of precautions should be taken:

iii. Overalls shall be supplied by the Tenderer to the workers and adequate facilities shall be provided to enable the working painters to wash during the

cessation of work.

iv. When the work is done near any public where there is risk of necessary equipments should be provided and kept ready for use and all necessary steps take 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.

**First Aid**

At every work place, there shall be maintained in readily accessible place, first aid appliance including an adequate supply of sterilized dressings and sterilized cotton wool. The appliance shall be kept in good order and in large work place, they shall be placed under the charge of a responsible person who shall be readily available during working hours.

**Electricity & Water**

Construction water shall not be provided by Bank the tenderder has to make his own arrangements. The tenderder has to make his own arrangements for electrical power to carry out the work, in view of the Power restrictions imposed by State Electricity Board. If the contractor need power, the same will be provided at one / two points on chargable basis by having separate energy meters at Rs.10/- per Unit.

Before starting the work the contractor has to submit the Scaffolding drawings and it is to be approved by the Architects / Structural Consultant /Client.

The Contractor is directly responsible for any accident, injury disableness and other such things that may happen to his workmen during working hours or outside working hours if they happen to be in the work site and that he will pay adequate compensation to such people. And the contractor has to take the full responsibility for these disabilities.

The Contractor will be responsible for any accident or unto ward incident that may happen to any person in the work site or near about due to inadequate safely measures, carelessness, negligence, incorrect procedures, inadequate supervision, improper methods, and that he will attend to all related police enquiry, court attendance and will bear the cost for all such expenses including compensation, if any, to be paid.

**ARTICLES OF AGREEMENT**

**THIS AGREEMENT** is made on this ……… day of …………month of …….. between Indian Bank a body corporate constituted under the Banking Companies (Acquisition and Transfer of Undertakings) Act 1970, having its Zonal Office Mumbai South at 18th Floor, Maker Tower F wing Cuffe Parade 400 005. (hereinafter referred to as the “Employer”) which expression shall include its successor, legal heirs and assignees of the one part.

**AND** M/s. ……………………………………….. having its office at …………………………………

………………………………………………………………………………………………………………...

(hereinafter referred to as the “Contractor”) which expression shall include its successor, legal heirs and assignees of the second part.

**WHEREAS** the Employer has caused drawings and tender documents for STRUCTURAL REPAIR & REHABILITATION, PAINTING ETC OF INDIAN BANK QUARTERS NEAR SANGEETA SOCIETY, DR. R. P. PATIL, MULUND (W), MUMBAI-400080.

‘**AND** whereas the Employer has called for tender vide ref. no. …………….……………..…… dated……………………....…

**AND** whereas the contractor has submitted the tender ref. no. …………………………………. dated ………………………… to the Employer on ………………………… .

**AN**D whereas the Employer has issued the work order ref …………………………………. dated……………………….. to the contractor to do the work.

**AND** whereas the Contractor has agreed to execute the work as per drawings, specifications, conditions of contract and Work Order.

**AND** whereas the Employer has accepted the Contractor’s tender as aforesaid and whereas the tender submitted by the contractor has been accepted for such sum as may be ascertained to be payable in terms of the Bill of Quantities and which sum is estimated to be Rs. ……………….. (Rupees ……………………………………..………………..) hereinafter referred to as the said “Contract Agreement”.

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:-**

1) In consideration of the said Contract Sum to be paid at the times and in the manner set forth in the said Conditions the Contractor shall carry out and complete the Repair & Painting Works in terms and conditions herein contained and according to the general conditions of the contract, notice inviting tender, special conditions of contract, general scope of work, technical specifications, schedule of rates and instructions to be given by and the supervision of and to the entire satisfaction of the Employer.

1. **Contract Price, Taxes and Payment Terms :**

Total contract price is Rs. ….……………. which is inclusive of cost of materials, equipment, installation charges and tools and tackles required for execution of the job. Above price is exclusive of all taxes (GST) in respect of this contract.

Interim payment will be made as per the site measurements on Item Rate basis.

1. **Completion Period**:

**Time is the essence of the Contract**. The work is to be completed in all respects within **9 Months’ time** reckoned from 15th day from the date of issue of the Work Order or handing over of site whichever is later. If the Contractor fails to complete the job within the agreed time period the Contractor will have to bear liquidated damages as per the relevant clause mentioned in the Tender Documents.

1. **Earnest Money**:

The Contractor has deposited an amount of Rs. 2,67,000/- (Rs. Two Lakh Sixty Seven Thousand only) as earnest money.

1. **Inspection of Site**:

The Contractor has inspected the site before submitting his tender and has satisfied himself as to the nature of the work to be executed on the site. Any difficulties which the Contractor may come across in the course of the work shall in no way relieve the contractor to claim or receive extra payment unless the Employer is of the opinion that such difficulties could not have been foreseen and the Employer consents in writing.

1. **Supply of Material and Labour**:

The Contractor shall arrange all labour, materials, equipments, tools, tackles and everything necessary for the completion of the work. The Contractor will assume all responsibility for the safety, protection and accounting of all material and equipment and the work during construction. All materials used by the Contractor shall be of the best

quality conforming to the required specification mentioned in the tender document and will be subject to the approval of the Employer. All such materials not approved by the Employer shall be removed at once by the Contractor at his own expense. The Contractor shall also at his own expense arrange for carrying out any test of materials which the Employer may from time to time require or if so desired by the employer.

1. **Defective Work / Materials**:

If any part of the work done by the Contractor is found defective in workmanship or if bad or inferior materials have been used the Contractor shall at his own risk and cost demolish all such defective work and rebuild the same and / or replace the bad or inferior materials used within a time frame mentioned to the satisfaction of the Employer. The decision of the Employer in this regard shall be final and binding on the Contractor. In case of default of the contractor to remove the defective work and rebuild the same or replace bad or inferior materials as directed by the Employer, the Employer shall be entitled to employ anyone else to carry out the same at risk and cost of the Contractor and recover all expenses incurred in this regard from the contractor.

1. **Inspection of Work**:

During progress of the work the Employer shall be entitled at all times to have access to and inspect the work.

1. **Supervision**:

The Contractor shall provide one or more competent and technical qualified engineers duly and fully authorized to act on his behalf in all matters relating to the works to be carried out under or any other matter concerning this agreement and who shall at all times be present at the works while any work is in progress as per directions, explanations & instructions of Employer.

1. **Compliance with Statutory Regulations & Work Rules**:

The Contractor shall be responsible for complying with the applicable laws / bye laws / Regulations in force from time to time and shall have to bear all statuary liabilities to the workers / personnel engaged for the job. Nothing will be paid extra in this regard. If any amount is paid by the Employer with this regard the same amount shall be deducted from the Contractor’s dues. The Contractor shall have to arrange insurance cover for the workers / personnel engaged by him for the job.

1. **Determination of Contract**:

In the event of Contractor failing to keep / adhere to agreed schedule of work, or in the event of the Contractor failing to comply with the provisions of this contract by default and / or negligence and / or suspension of work or in the event of Contractor failing to complete the work within the stipulated period, the Employer may terminate this Agreement forthwith and employ, at the Contractor’s risk and cost, another contractor or sufficient number of workmen to complete the work.

1. **Force Majeure**:

This clause will be operative only if the work is delayed by

* 1. Acts of God
  2. Earthquake or floods or similar natural calamities.
  3. Serious loss or damage by fire or lightning.

In case any Force Majeure condition herein mentioned occurs and continues for a period exceeding 15 days the parties hereto undertake to sit together and devise ways for expeditious and proper performance of the obligations of the parties under this order.

1. **Arbitration**:

“ In the event of any dispute or difference relating to interpretation and application of provisions of the contract and all disputes/claims whatsoever which shall either during the continuance of the contract or afterwards either between the parties to the contract or the respective representatives touching the construction/application of any provision/clause mentioned in the contract or any account or liability between the parties to the contract or as to any act or deed or omission of any party to the contract, in any way relating to these presents, shall be first at the discretion of the Bank attempted to be resolved in good faith by mutual discussion within 30 days of the dispute or question being raised failing which the same shall be settled by arbitration in accordance with provisions of Indian arbitration and Conciliation act 1996.

The Parties concerned shall designate an arbitrator on mutual consent/consensus. In the event of no consensus being arrived, an Arbitral Tribunal shall be constituted comprising three Arbitrators, each party appointed one arbitrator and a third arbitrator to be appointed by the two arbitrators so appointed by the parties. The venue of the arbitration shall be exclusively at Mumbai and any award passed by arbitrator or the arbitral Tribunal shall be final, conclusive and binding upon the parties and shall be deemed to have been made between parties themselves. The parties to the dispute shall share equally the cost of arbitration as intimated by the arbitrator”.

Indian Bank reserves to itself the right of altering the drawings and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this contract.

**In witness** whereof the said contracting parties have set their hands and seals on the day and year first hereinabove witness.

Witness Address Employer

Witness Address Contractor

Seal and Signature of the Tenderer

**TECHNICAL SPECIFICATION**

**STANDARD SPECIFICATION FOR SANITARY FITTINGS & FIXTURES**

**CONTENTS**

1.0 GENERAL

2.0 SANITARY FITTINGS

3.0 INDIAN TYPE WATER CLOSET

4.0 WASH DOWN TYPE WATER CLOSET

5.0 URINALS

6.0 WASH BASINS

**GENERAL**

Reference shall be made to the following Indian Standards for any further information etc. not covered in the specification. In case of any conflict/contradiction provisions of specification shall override.

IS-25S6 Specification for Vitreous Sanitary appliances (Vitreous-China. Part 1-15).

IS-774 Specification for Flushing Cistern for Water Closets and Urinals.

IS-781 Specification for Cast copper alloy screw down bib taps and stop valves for water services.

IS-2064 Code of Practice for Selection. Installation and Maintenance of Sanitary appliances.

**SANITARY FITTINGS**

All glazed earthen ware shall be of approved make, colour and of one piece

construction. All metallic fixtures like taps, stop cocks, soap holders etc. shall be CP

brass and approved make. All wall fittings shall be fixed with nylon sleeve and CP

brass screws and washers.

**WASH DOWN TYPE WATER CLOSET**

Wash down water closet shall be of pattern-1 conforming to IS:2556 Part-II. Water

Closet shall be of one piece construction. This shall be fixed with plastic seat and

cover as per IS:2548 of approved make, fixed with CP brass hinges and rubber buffers and an integral 100 mm dia 'S' or 'P' trap with anti syphonage vent horn.

A low level earthenware cistern conforming to IS:774 of about 10 litres capactiy, with 15mm dia PVC inlet pipe and brass union with wiped solder joint, internal overflow arrangement. 40 mm dia CP brass flushing pipe.MS supporting brackets shall be fixed with the water closet. The closet shall be fixed firmly in the floor with matching cement mortar. All exposed metallic surfaces shall be painted with two coats of synthetic enamel paint of approved quality over a coat of primer. The clearance between top of pan and bottom of cistern shall not exceed 300 mm.

Rate quoted for item rate tenders shall include providing and fixing of all fittings,

breaking floors and wall, making good the same, making inlet and outlet connection to the cistern and the closet, testing of joints, painting the exposed metallic surface with two coats of white enamel paint over a coat of primer etc. complete.

**URINALS**

Half stall type urinal shall be conforming to IS:2556 Part VI. Urinals shall be of single piece construction with integral flushing box rim. These shall be mounted on walls. The flushing inlet pipe shall be of CP brass 15 mm dia and waste pipe 32 mm dia Gl, 750 mm long shall be embedded in wall. Necessary unions and CP bottle trap shall be provided in the waste line. Rawl plugs with CP brass screws shall be used for fixing the urinal. Fixing shall ensure that no liquid is left over in the pan after flushing. Unless otherwise indicated height above finished floors shall be 600 mm. Urinals shall be connected to glazed earthenware automatic flushing cisterns either

individually, or in groups. Where individually connected to flushing cistern, the

cistern capacity shall be 5 litres. For two urinals, one cistern of 10 litres capactiy and

for three urinals, one cistern of 15 litres, capacity shall be provided. Cistern inlet

shall be 15 mm dia PVC pipe with brass union. Outlet pipe from cistern shall be

25mm CP brass main, with 15 mm CP distributor pipe of sufficient lengths to reach

each bowl. Where individual cisterns are provided the outlet shall be of 15 mm CP

brass. Rate quoted for item rate tenders shall include cost of urinals inlet and outlet

pipes, flushing cistern, breaking and making good the walls and flooring, making

inlet and outlet connections, painting exposed brackets and GI pipes etc.

**WASH BASINS**

This shall be flat back wash basin with one tap hole conforming to IS: 2556 Part-IV.

Wash basins shall be of one piece construction including a combined overflow having an area of not less than 5 Sq. cm. shall be provided in the front or back of the bowl and it shall be so designed as to facilitate cleaning of the overflow. This shall be fitted on CI or MS brackets. Brackets shall conform to IS: 775. The brackets shall be given two coats of synthetic enamel paint or aluminium paint, over a coat of primer.

The wall side shall be fixed well flushed with the plaster or wall and the joint if any,

shall be properly stopped with an electrometric sealant. One CP brass pillar cock, PVC connecting pipe with brass union, a CP brass bottle trap with union. CP brass chain and rubber PVC stopper,32mm dia GI waste pipe shall also be supplied and fitted with the wash basin and embedded in the wall. The top of rim of the wash basin shall be fixed at 800 mm above finished floor level, unless otherwise specified.

Rate for item rate renders shall include provision and Fixing of wash basin with all

accessories, providing stop cocks and pillar cocks, breaking and making good wails,

fixing and making inlet and outlet connections for stop cock, pillar cock and waste

pipe, providing & fixing MS brackets painted as mentioned above etc. complete.

**STANDARD SPECIFICATION FOR WHITE WASHING, COLOR WASHING,**

**DISTEMPERING, PAINTING AND POLISHING**

**CONTENT**

1.0 General

2.0 White Washing

3.0 Colour Washing

4.0 Dry Distempering

5.0 Oil Bound Distempering

6.0 Water Proof Cement Paint

7.0 Plastic Emulsion Paint

8.0 Acrylic Copolymer aggregate Finish

9.0 Painting of Wood Work

10.0 Painting of Steel and other Metal Surface

**GENERAL:**

Reference shall be made to the below Indian Standards for further information etc, not covered in the specification. In case of conflict / contradictions provisions of the specification shall over ride.

|  |  |
| --- | --- |
| IS 6278  IS 2395 IS 712  IS 55  IS 63  IS 427  IS 428  IS 5411 IS 2338 IS 5410 IS 2524 IS 384  IS 486  IS 110  IS 426  IS 345  IS 3585 IS 426  IS 106 | Code of practice for white washing and color washing.  Code of practice for painting concrete, masonry and plaster surfaces  Specification for building limes  Specification for Ultramarine blue for paints  Specification for whiting for paint and putty  Distemper (dry) color as required  Distemper (Oil Bound), color as required  Specification for plastic Emulsion paint for interior use  Code of practices for finishing of wood, and wood based materials  Cement paint, color as required  Code of practice for painting non ferrous metals in buildings  Brushes, Paints and varnishes, flat  Brushes, sash, tool for paints and varnishes  Ready mixed paint, brushing, grey filler enamels for use over primers  Paste filler for color coats  Wood filler, transparent liquid  Ready mixed paint, Aluminium brushing priming water resistant for woodWork Paste filler for color coats.  Ready mixed paint, brushing, priming for enamels for use on metals. |

All materials requires for the execution of painting work shall be obtained direct from approved manufactures and shall be brought to the site in makers drums, bags etc with seals unbroken.

In case of ready mixed paints, thinning if necessary the brand of thinner shall be as per recommendations of the manufacturer.

Paint shall be applied by brushing or spraying. The brushing operations are to be adjusted to the spreading capacity advised by the manufacturer. During Painting, every time after the paint has been worked out of the brush bristles, the bristles shall be opened up by striking the brush suitably.

Spray machine used may be of high-pressure type or low pressure depending on the nature and location of work. After work, the brushes shall be completely cleaned of paint and shall be hung in a thinner if intended to be used afterwards. The spray guns shall be cleaned thoroughly after every break in work. The paint containers, when not used shall be kept close and free from air.

After the finishing of work, the adjacent surfaces not intended to be washed /

distempered / painted / polished, shall be thoroughly cleaned of all paint parches and shall be finished in accordance with surface finishing of such surfaces.

**WHITE WASHING**

White washing in general shall conform to IS 6278

**Workmanship**

**Scaffolding**

Wherever scaffolding is necessary, it shall be erected in such a way that as far as possible no part of scaffolding shall rest against the surface to be white / color washed. For white washing of ceiling, proper stage scaffolding shall be erected.

**Preparation of surfaces**

The surface shall be thoroughly cleaned of all dirt, dust, mortar dropping and other foreign matter before white wash is to be applied. Surfaces already white / color washed shall be broomed down to remove all dust, dirt loose scales of lime wash or other foreign matters.

All damaged portions of the surface plaster shall be removed to full depth of plaster in rectangular patches and plastered again after raking the joints in masonry properly. Such portions shall be wetted and allowed to dry before any operation. All holes, Cracks, Patches etc. not exceeding 0.1 sq.m. in area shall be made good with material similar to that of the surface. Surfaces affected by efflorescence, moss, fungi, algae, lichen etc. shall be treated in accordance with IS: 2395.

**Preparation of White Wash**

**Application**

White wash shall be applied with “MOONJ” brush to the specified number of coats. The operation for each coat shall consist of stroke of the brush from the top to down wards. Another from the down to upward over the first stroke. Similarly one stroke horizontally from right and another stroke from the left. Each coat shall be allowed to dry before the next coat is applied. The white washing on ceiling should be done prior to that on walls.

**Protective measures**

Surfaces of doors, windows, floors etc., which are not to be white washed, shall be protected from being splashed upon. Such surfaces shall be cleaned of white wash splashed if any.

**EMULSION PAINTING**

**Workmanship**

**Scaffolding**

Wherever scaffolding is necessary, it shall be erected in such a way that as far as possible no part of scaffolding shall rest against the surface to be white / color washed. For white washing of ceiling, proper stage scaffolding shall be erected.

**Preparation of Surface**

Preparation of surface shall in general be in accordance with clause no. 4.1.2 except that any unevenness shall be made good by applying putty made of plaster of Paris mixed with water including filling up the undulation and then sand papering the same after it is dry.

**Preparation of Paint**

Plastic emulsion paint shall conform to IS: 5411 (Part-1) and shall be of approved shade. Preparation of paint shall be as per manufacturer’s instruction.

**Application of Paint**

The paint mix shall be continuously stirred while applying for maintaining

uniform consistency. Number of coats shall be as specified. The painting shall be laid evenly and smoothly by means of crossing and lying off. The crossing and lying off consists of covering area with paint. Brushing the surface hard at first, then brushing alternatively in opposite direction 2 to 3 times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks no hair marks no clogging of paint puddles shall be permitted. The full process of crossing and laying off will constitute one coat. The paint shall be applied by means of brush or roller.

Before starting painting with plastic emulsion paint the prepared surface shall be treated with two coats of primer consisting of cement, primer, whiting and plastic emulsion paint shall start only after the preceding coat has become sufficiently hard to resist brush marking.

Subsequent coats of plastic emulsion paint shall also be started after the preceding coat is dried by evaporation of water content. The surface on finishing shall present a flat velvety smooth finish even and uniform shade without patches marks paint drops etc.

**Precautions**

Brushes shall be quickly washed in water immediately after use and kept immersed in water during break periods to prevent the paint from hardening on the brush. Old brushes if used shall be completely dried of turpentine / oil paints by washing in warm soap water.

No oil base putties shall be used in filling cracks / holes.

Washing of painted surface shall not be done within 3-4 weeks of application.

**Protective Measures**

Surfaces of doors, windows, floors etc., which are not to be white washed, shall be protected from being splashed upon. Such surfaces shall be cleaned of white wash splashed if any

**STRUCTURAL TREATMENT**

**SikaTop® -122 HS**

Polymer modified one component repair mortar for hand and machine application

SikaTop® -122 HS is a pre-batched one component polymer modified repair mortar.

**Concrete:**

The concrete shall be free from dust, loose or friable material, surface contamination

or other materials which reduce bond or prevent suction or wetting by repair

materials.

**Steel Reinforcement:**

Rust, mild scale, mortar and concrete residues, dust and other loose or friable

material and other contamination which reduces bond shall be removed.

Substrate Preparation

**Concrete:**

Delaminated, weak, damaged and deteriorated concrete and where necessary sound

concrete shall be removed by suitable mechanical or very high pressure water- blasting techniques (up to 110 MPa).

Tie wire fragments, nails and other metal debris embedded in the concrete should be

removed. The edges around areas of concrete removal should be angle cut at a minimum of 90o to avoid undercutting and a maximum angle of 135o (with the top surface of the adjacent sound concrete), to reduce the possibility of de-bonding. They should then be roughened sufficiently to provide a mechanical key between the original material and SikaTop® -122 HS repair mortar.

Ensure sufficient concrete is removed from around embedded or exposed steel

reinforcement to allow application of the anti corrosion coating when required and

adequate compaction of the repair material.

**Steel reinforcement:**

Surfaces should be prepared using abrasive blast cleaning techniques or high

pressure water-blasting techniques (up to 60 MPa) or by applying Sika® Rust off 100 to remove rust (Refer to the relevant Product Data Sheet) Where exposed reinforcement is contaminated with chlorides or other material which may cause corrosion, the reinforcement should also be cleaned by low pressure water-blasting (up to 18 Mpa)

**Bonding primer:**

On a well prepared and roughened substrate a bonding primer is generally not required. When a bonding primer is not required pre-dampen the surface to a saturated surface dry condition. The surface should not be allowed to dry before application of the concrete repair mortar. The surface should have a darkened matt

appearance without glistening and the surface should not have free-standing water.

When a bonding primer is necessary, apply Sika® Latex / Sikadur® 32 LP / Sika®

Hibond/ SikaTop Aramtec 110 EpoCem bond coat - (Refer to the relevant Product

Data Sheet).Pressed well on to the substrate. In all cases, subsequent application of

the repair mortar should be done ‘wet on wet’.

Measured ‘pull off’ values - Structural Repairs minimum value 1.2 - 1.5 MPa; Non

Structural repairs minimum value 0.7 MPa (Dependent on the strength of the concrete being repaired).

|  |  |  |
| --- | --- | --- |
| **APPROVED MAKE OF MATERIALS** | | |
| **Sl No** | **Materials** | **Brand** |
| 1 | Cement PPC / OPC Grade 43 / 53 | ACC, Ultratech, Coromandel, Ramco,  Dalmia, Maha, Bharathi |
| 2. | Sand | M Sand. **For Structural Repairs only River Sand to be used/ Ready mix plaster** |
| 3 | Steel / MS Sections | Sail / Vaisak / Jindal / TATA tiscon |
| 4 | AAC blocks | Xtralite from Ultratech, Aerocon from HIL, Siporex India limited, Kamcrete |
| 5 | Water proofing material | Fosroc / Pidilite / Equivalent |
| 6. | Aluminum Perforated panel | N Dot Dorwin /Artzinium make /Fameline make / Hunter Douglas make |
| 7. | Corian cladding | Dupoint / LG Himacs |
| 8. | ACP Cladding | Aludecor, Eurobond and Alstone. |
| 9. | Vitrified Tiles | Asian, NITCO, RAK, Kajaria |
| 10. | Glazed Ceramic Tiles | NITCO, RAK, Kajaria, Somany, Asian |
| 11. | Paint/primer/oil bound distemper Acrylic paint | Asian / Dulux / Nippon Equivalent |
| 12. | Synthetic enamel paint | Berger, Nerolac, Asian, ICI,Nippon |
| 13. | Cement based wall putty | JK wall putty, Birla wall case, Asian Paints, |
| 14. | Acrylic textured plaster | Asian / Dulux / Nippon and Equivalent |
| 15. | Aluminium Systems / Anodized aluminum sections. | Jindal / Indal or Equivalent |
| 16. | Polymer (PMM) / Acrylic Coating. | Constrochem India Pvt Ltd / Pidilite |
| 17. | Corrosion Treatment | Constrochem India Pvt Ltd/ Pidilite |
| 18. | Elastomeric Paint | Asian Paint / Constrochem India Pvt Ltd / Pidilite / Sunanda / STP. |
| 19. | Interior emulsion and Exterior emulsion | Asian Paint, Berger, Dulux, Equivalent |
| 20. | Plumbing (UPVC, PVC, CPVC) | Supreme / Prince or equivalent. |
| 21. | Vitreous W.C. pans / wash basins | Hardware, Parry ware |
| 22. | Water supply fixtures / fittings like CP bib cocks, etc | Parry ware equivalent |
| 23. | CPVC pipe and fittings | Supreme, Astral, Finolex, Prince. |
| 24. | UPVC pipes | Supreme, Astral , Finolex, |

**All materials used shall be approved by the Client prior to use.**

P. S : It will be Contractors responsibility to provide Test Certificates from each manufacturer, specifying clearly Batch No , date of Manufacturing etc. However if any doubt arises about the quality of a particular material brought to site, Bank may directly take the samples and get them tested in any laboratory and the cost towards testing to be borne by the Contractor. If material found to be of inferior / substandard quality, Contractor at his own cost shall remove such material from the site and procure new material as required.

GENERAL: Repair and Rehabilitation works does not mean plaster paint and forget. Contractors are advised to treat this part of tender/Contract with an understanding that is more serious than for new works. It is editable that the work when carried out by the contractor is done with full knowledge of the material used, its high points and its shortcomings. Every additive used should be properly dealt with and prior approval about the methodology of repair and mixing proportions be ascertained by the contractor from the consultants.

Preparation for any work forms an important part of repairs and rehabilitation work and due importance be given to all surface preparation. Approval and consultants go ahead is required whenever such surface preparations are mandatory before actual repairs can start. Improper preparation can lead to future failures.

All repairs to structural members must be preceded with a proper support system. This structural support system must be worked out for each structural member. Structural significance and safety of the whole building is of paramount importance. Necessary suitable propping is required to be provided Shall have proper bottom and top bearing planks of proper material and area with adequate thickness (minimum 25mm). The props shall be tight and vertical and should not move or vibrate when tapped. A guideline to check if the number of props provided is sufficient being for wood. One wooded prop of 100 mm dia. shall carry 3 T of load. Unless detailed calculations are done, the following approximate shall apply.

Every column carries approximately the following load: Wc = Wcon + Wst. Where Wcon = Y where Y is the breadth in cms if width is 23cms And Wst is as follows: Dia in mm load per bar 12 2 T 16 4 T 20 6 T 25 9 T

So Wst = load per bar x No. of bars It is mandatory to support every column being jacketed.

TS 2. REMOVAL OF CONCRETE/ PLASTER COVER : 2.1. The range of removal of plaster/ concrete cover shall extend to the limit of crack /hollowness /corrosion of rebar. The governing dimensions of removal shall be based on the minimum dimensions and/or shall extend beyond the zone of rusting to a minimum dimensions.

2.2. Concrete surfaces to which treatment are to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

2.3. A good base or foundation shall be prepared for successful application of any treatment.

2.4. All unsound /weak concrete/ mortar material shall be first removed by the contractor up to the required depth. Chipping shall continue until there are no offsets in the cavity, which will cause an abrupt change in the thickness of repaired surface. No square shoulders shall be left at the perimeter of

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the cavity, all edges shall be tapered. The final cut surface shall be critically examined to make sure that it is sound and properly shaped.

2.5. All treated area shall always measure after chipping is complete. It shall be measured as the nearest geometrical shape. Thickness measurements for structural repair shall be taken as average thickness measurement backward from theoretical calculations based on chemical consumption’s. Such cases of average thickness exceeding 25 mm shall be paid on prorate basis of quoted rate.

TS 3: CLEANING OF SURFACE: 3.0. Cleaning of concrete surfaces.

3.1. Concrete surface to which treatment are to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

3.2. Mechanical abrasion:- Use sandblasting or scarifying or wire brushing or other approved means. The purpose of this is to achieve a surface that is clean and dust free. Distressed loose concrete is to be removed.

3.3. Acid etching:- Etch surface with a commercial grade of hydrochloric acid diluted at a ratio of 10:90 to 20:80. After this application, scrub surface with a stiff bristled broom, brush, or similar implement. Immediately after foaming action of acid has subsided, flush surface with water jets until all residues is removed. Repeat procedure until Latinate is completely removed. Wash such areas with water at least three times and allow to air dry prior to further treatment.

TS 4: WATER CLEANING :

4.1. All surfaces so prepared as per TS 2 and TS 3, have to be cleaned of all the effects of the above procedure.

4.2. A fresh water jet is recommended for the cleaning process. This is aimed to remove all dust, oil, rust particles and any such deleterious material that is not conducive to sound construction practices. The jet pressure can also be achieved by a stream of fast flowing water from a pipe.

4.3. Inspection of concrete surfaces prior to mortar application.

4.4. Inspect all concrete surfaces prior to application of mortar to ensure that section is free from loose particles and deleterious materials, cracks and effects of corrosion or carbonation.

4.5. Surfaces shall be free of any deleterious materials such as Latinate, curing compounds, dust, dirt, and oil. Materials resulting from surface preparation specified in Article 3.1 shall be removed.

4.6. All concrete surfaces shall be dry as defined in Article 4.2.3.2 below unless a water-insensitive coating is used.

4.7. Evaluate moisture content for concrete by determining if moisture will collect at boundary lines between old concrete and new coating before the new coat has cured. This may be accomplished by taping a 4 x 4 ft polyethylene sheet to concrete surface. If moisture collects on underside of polyethylene sheet before polymer would cure, then allow concrete to dry sufficiently to prevent the possibility of moisture between old concrete and new layer.

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TS 5: CHIPPING OF CONCRETE COVER :

5.1. The range of removal of concrete cover shall extend to the limit of crack /hollowness /corrosion of rebar. The governing dimensions of removal shall be based on the minimum dimensions given in the drawing and/or shall extend beyond the zone of rusting to a minimum dimension as specified in the drawing.

5.2. Concrete surfaces to which treatment are to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

5.3. A good base or foundation shall be prepared for successful application of any treatment.

5.4. All unsound /weak concrete/ mortar material shall be first removed by the contractor up to the required depth as directed by engineer. Chipping shall continue until there are no offsets in the cavity which will cause an abrupt change in the thickness of repaired surface. No square shoulders shall be left at the perimeter of the cavity, all edges shall be tapered. The final cut surface shall be critically examined to make sure that it is sound and properly shaped.

5.5. All areas so chipped shall be subjected to water cleaning and drying. No deleterious material shall be left on the chipped surfaces. It is essential that the loose and cracked concrete shall be properly removed. It is essential that concrete around the rebar, which shows corrosion shall be removed properly, and sufficiently to ensure proper cleaning of rust from the rebar.

5.6. In case the distressed concrete extends into the core of the section it is essential to seek the consultant’s approval prior to removal of this concrete. It is essential also to design proper support system and prop the area prior to removal of concrete beyond 5 mm inside the core area.

6. BOND COAT:

6.1 The specific quality requirements as stipulated in TS 5 above for a common work of bonding needs in restoration shall be followed. All the test facilities are generally not available even in sophisticated laboratories in the country. Few manufactures do have such an in-house facility with them. The difficulty therefore lies in strict stipulations and their subsequent job-site compliance. Therefore reliability of the product quality is important. The coat of approved material shall be applied to all exposed surfaces of concrete at least 20 minutes prior to polymer modified mortar / treatment. The material to be used shall be nonacidic in nature. List of approved material is given elsewhere in the document. Only those materials shall be allowed to be used. All chemicals used for Rust Inhibition, Bond coat, Polymer Modified Mortar shall be of same generic and same manufacturer.

6.2. The items to be used shall comply with all requirements as specified in TS 5 and the material purchased shall be given in the consultant’s custody in the original manufacturer’s sealed manner. It shall always remain in the consultant’s custody.

6.3. EXECUTION :

6.3.1 Preparation of concrete surface

6.3.2 Concrete surfaces to which bonding chemicals are to be applied shall be exposed; this parent concrete should be free of loose and unsound materials. Surfaces shall be prepared by mechanical abrasion or using sand blasting/ stiff wire brushing as instructed by engineer.

6.3.3 Inspection of concrete surface prior to bond coat application.

6.3.4 All concrete surfaces prior to applications of coating shall be thoroughly inspected and approved by the consultant.

6.3.5 Surfaces shall be free from any deleterious materials, such as oil, dust, dirt etc.

6.3.6. Adhesive mixes permitted for Epoxies only. Polymers come in ready to use packages.

6.3.7. Bonding components shall be mixed in a clean container free from harmful residue or foreign particles.

6.3.8. Epoxy components shall be thoroughly blended with a mechanical mixer to an uniform and homogeneous mixture. Small batches (up to 1 liter) however shall be allowed by manual mixing such as using spatulas, palette knives etc.

6.3.9. Coating application on concrete / shotcrete / mortar placement

6.3.10. Work of application of bonding coat shall not be allowed to be performed beyond 40C atmospheric temperatures. In case the temperature is above specified then it is essential that cooling of the surface shall be done by water application and then drying the surface of free water.

6.3.11. Bonding coat shall be applied to concrete surfaces by spray equipment. However, contractor may apply the coating by brush, subject to the permission of engineer.

6.3.12. Fresh plastic concrete as per suggested system of modification shall be applied while coat is still tacky. If Bond coat cures to extent of losing its tacks before plastic modified concrete is placed, the same shall be removed or slightly abraved and second coat of Bond coat applied.

6.3.13 freshly placed plastic concrete shall be thoroughly consolidated to ensure full bonding of new concrete.

6.4. CLEAN UP :

All concrete surfaces shall be well protected beyond limits of surface receiving coating against spillage and over spaying.

6.5 SAFETY :

Contractor shall advice all workers working with bonding chemicals to avoid contact with eyes and skin, inhalation of vapors, and ingestion. Necessary protective and safety equipments in the form of hand gloves, welders, goggles, shall be provided by the contractor on site.

6.6. FIELD QUALITY PERFORMANCE REQUIREMENT :

6.6.1. The engineer shall evaluate bonding of fresh concrete/ Shortcrete/ mortar to existing concrete after the fresh material has cured for not less than 7 days.

6.6.2. The evaluation shall be performed by sounding, tapping fresh concrete with a blunt metal instrument.

6.6.3. Detection of a hollow sound in any area shall be a reason to suspect inadequate bonding. Under such circumstances the contractor shall on instructions of engineer, core each such area after 28 days of concrete for further determination of bonding adequacy.

6.6.4. Only if the quality has been detected to be poor the section core shall be taken. Coring shall be through new concrete / shotcrete / mortar and into the existing concrete. Core diameter shall be as required by the engineer. Length of cores shall be twice the core diameter or twice the thickness of new concrete/ shotcrete/mortar, or as instructed by engineer. Such tests are essential only in case the section is treated for stress related causes.

6.6.5. Cores will be visually inspected by engineer evidence of poor workmanship and shall be tested in tension by the contractor to evaluate the quality of bond between new concrete /shotcrete /mortar and the host concrete. If the failure is in the host concrete, the bond of new concrete/shotcrete/mortar shall be deemed to be satisfactory. Failure at the bond-line shall be concluded as lack of proper bond between the new concrete/ shotcrete/ mortar and present concrete, and the contractor shall dismantle such areas of work as instructed by engineer and prepare the surface after chipping off new concrete/ mortar work and abrading the bonding interface.

7.0 SPECIFICATIONS FOR POLYMER MODIFIED MORTAR TREATMENT 7.1. All surfaces of the structural columns, beams and slabs existing cracks in concrete/ plaster shall be opened up to reinforcement i.e. the cover to concrete shall be removed and steel be exposed.

7.2. Remove the loose concrete and clean the concrete and reinforcement using a wire brush. While the removal of cover care shall be taken to ensure that core of the column is not disturbed.

7.3 Apply rust remover of approved make to the reinforcing bars thus cleaned as instructed. After 24 hours, brush off the loose rust particles, if any, by paintbrush.

7.4 Apply a coating of approved Rust passivator / cement slurry in the proportion 1:1 (by weight) as per manufacturer’s specification to chemically degusted surface of steel by brush. 7.5 Followed by applying one more bond coat after 24 hours if required and instructed by the Consultant. If the reinforcement is corroded heavily use expanded wire mesh for additional support. In case the existing reinforcement is inadequate provide additional reinforcement as per consultant’s advice.

7.6. Apply POLYMER MODIFIED MORTAR (PMM) prepared by mixing: 1 Kg Polymer. 5 Kg Cement. 15 Kg River sand / Quartz sand

While preparing PMM water should be controlled to obtain desired consistency. PMM thus prepared shall be used (consumed) within 30 minutes. In case of non use of this PMM, it shall by duly disposed off and discarded. Curing to be done as per manufacture’s specification. The entire treatment shall be carried out strictly as per the above specifications and under the supervision of Consultant as instructed and directed. Measurement:- The measurement shall be taken on the actual area of the original prepared surface where PCM work is executed. The PCM shall be finished to match with the existing RCC surface and measured in flat surface area.

7.4 CLEANUP :

7.4.1. Protect concrete surfaces, beyond limits of surface receiving polymer modified mortar, against spillage.

7.4.2. Safety- Polymer materials may be skin irritants or sensitizers to many people. Accordingly, advise applicators to avoid contact with eyes and skin, inhalation of vapors, and ingestion. Make protective and safety equipment available onsite. Heed all label warnings by manufacturer. Make application in accordance with applicable safety laws.

7.5. CURING : 7.5.1: All polymer treated surfaces can either be immediately covered with plain cement mortar and then cured after 12 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat of plaster.

7.5.2: All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 40 degree Celsius then curing shall be resorted to as many times as required to keep the surface moist or to ensure the mortar temperature does not rise.

7.6. TESTING PROCEDURE FOR ADEQUACY :

7.7.1. Every job that has PMM work the following test procedure shall be adopted: (a) Prepare cube samples of PMM with 5%, 10%, 15%, and 20% modification .The size of the cube shall be 15cm x 15cm x 15cm. Five cubes of each modified mortar shall be prepared and moist cured at 60% humidity for 28 days. (b) Three cubes shall be tested compression. Mortar samples whose compressive strength is less than M15 shall be discarded. Details of tests shall be as specified elsewhere. (c) Two cubes shall be crushed, powdered and processed for percentage benchmark chemical testing. This test shall be performed approved laboratory suggested by the consultant. (d) Samples of Min 250gm shall be chipped from insitu. Locations being chosen randomly by the consultant from every 50 SQMT of PMM works. This sample shall be tested for chemical equivalence and co-related to the benchmark samples. (e) Incase of inadequate modification the contractor has an option to get two more locations chosen randomly by the consultant and “step (d)” repeated .Incase majority samples fails the tests , the entire 50SQMT of PMM work shall be termed defective and replaced by the contractor free of cost . (f) Testing shall be done free of cost by the contractor and shall not raised any bill to the client.

8. POLYMER MODIFIED CONCRETE :

8.1 The material used shall be as per instructed. Equivalence shall be proved based on the comparison of the infra spectrometer graph of the product the contractor wishes to use with that of the recommended product. The decision of the consultant the decision of the consultant as regards to the generic and brand shall be final for this contract and the contractor shall use only the material so approved.

8.2. The items to be used shall comply with all requirements as specified in STS 6 and the material purchased shall be given in the consultants’ custody in the original manufacturer’s sealed manner. It shall always remain in the consultant’s custody.

8.3. Concrete mixes shall be Minimum M 25. Or 1: 1: 2 using 53 grade cement.

8.4. Mix polymer components in clean container free of harmful residue of foreign particles.

8.5. Temperature from preparation of polymer concrete to application should be between 0 to 40 degree centigrade, otherwise recommended by manufacturer.

8.6. Thoroughly blend polymer with a mechanical mixer to uniform and homogeneous mixture if the polymer is more than one month old.

8.7. The proportion of mixing the polymer for modification shall be decided by the use of the modified concrete. For use in cover replacement the percent of polymer can be limited to 15 percent. Care has to be taken to ensure that the addition of water is restricted to minimum.

8.8. Polymer Modified Concrete application. Modified concrete shall be prepared by first mixing all dry components in dry state mix required quantity of polymer with equal volume of water mixture. Mix the dry system and polymer and water mixture. Mix thoroughly by workable mix. For 1 bag of cement 7.5 Kg of polymer shall be used and the concrete shall be 1: 3 volumetric mixes.

8.9. Apply polymer modified concrete to concrete surface by hand packing. Thickness shall be within the limits recommended by the manufacturer.

8.10. Work polymer modified concrete into place and consolidate thoroughly so that all contact surfaces are wet by the concrete and entrained air is reduced to the level recommended by manufacturer.

8.11. Finish surface of polymer modified concrete to texture, color, and smoothness required for the specific application. This concrete coat should be finished by application of plain cement mortar in 1: 3 using 53 grade cement. No water curing shall be applied to polymer modified concrete surface .However over coat of plain cement mortar shall be cured with water as required after 12 Hrs.

8.12. Upon completion of finishing operations, allow mortar to cure in accordance with normal curing practices.

8.13. Cleanup

8.14 Protect concrete surfaces, beyond limits of surface receiving polymer modified concrete, against spillage.

8.15. Safety- Polymer materials may be skin irritants or sensitizers to many people. Accordingly, advise applicators to avoid contact with eyes and skin, inhalation of vapors, and ingestion. Make protective and safety equipment available onsite. Heed all label warnings by manufacturer. Make application in accordance with applicable safety laws.

8.16. CURING :

8.16.1: All polymer treated surfaces can either be immediately covered with plain cement mortar and then cured after 13 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat of plaster.

8.16.2: All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 40 degree Celsius then curing shall be resorted to as many times as required to keep the surface moist or to ensure the mortar temperature does not rise.

9. GROUTING FOR SURFACE REPAIR

9.1 PRODUCTS. : All components used for grouting repair system are to be from one of the approved makes of polymers. All components are to be of the same make. No components of different makes can be used in conjunction with each other.

9.2. The products shall only be from the approved list of companies.

9.3. Proper care is to be taken when using the material to maintain the required consistency and purity.

9.4. Only polymer latexes based on styrene butadiene (SBR) or acrylics can be used. The latex should have solid to a maximum of 45% and minimum of 35%. The physical, chemical and structural properties of the material used are to be submitted and specific approval to be seeked for the material/system to be used. 9.5 Surface inspection and preparation.

9.6. All surfaces to be treated are to be exposed to the base level with removal of all claddings, plasters, facades, waterproof layers etc.. The surface is to be examined for surface cracks, crevices, spalls and honey combing.

9.7. Concrete surface to which treatment is to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

9.8. Mechanical abrasion:- Use sandblasting or scarifying or water blasting or other approved means.

9.9. Acid etching: - Etch surface with a commercial grade (22 deg Baume) of hydrochloric acid diluted at a ratio of 10:90 to 20:80. After this application, scrub surface with a stiff bristled broom, brush, or similar implement. Immediately after foaming action of acid has subsided, flush surface with water jets until all residues is removed. Repeat procedure until laitance is completely removed. Wash such areas with

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water at least three times and allow to air dry prior to further treatment. This method of cleaning is to be used only in exceptional cases and under normal cases permission will not be given for use of this method.

9.10. Inspection of concrete surfaces prior to mortar application

9.11. Inspect all concrete surfaces prior to application of mortar to ensure that requirements of this Article are met

9.12. Surfaces shall be free of any deleterious materials such as laitance, curing compounds, dust, dirt, and oil. Materials resulting from surface preparation specified shall be removed.

9.13. All concrete surfaces shall be dry as defined in Article 17.2.2.3.2 below unless a water - insensitive coating is used. Surface temperature shall be at least 40F to permit wetting of concrete surface by polymer coating.

9.14 Evaluate moisture content for concrete by determining if moisture will collect at surfaces. This may be accomplished by taping a 4 x 4 ft polyethylene sheet to concrete surface. If moisture collects on underside of polyethylene sheet before polymer would cure, then allow concrete to dry sufficiently. Drying of the surfaces can be accomplished by either heating the surfaces by blowlamps or by use of sawdust, sand or any other means so that the surface is bone-dry.

9.15 Identification of method of grouting.

9.16. For All Surfaces Having Cracks/ Crevices.

9.17. Locate the cracks by either surface inspection or by scrubbing the surface. In case the cracks are not visible to naked eye use compressed air to clear the crack marks. Having identified the cracks use light chisel or mechanical/ electrical saws to clear the crack upto the depth of the crack. In case widening of the crack is necessary to reach the depth of the crack it is advisable to do so at this juncture.

9.18 After clearing/ widening the crack use compressed air/ water jet to clean the opened crack surface. Ensure that the surface is dried in case water jet is used.

9.19 A method of grouting through three rows of grout nipple is to be adopted for all such cases. Insertion of the grout nipples are as per the specification .The section shall then be subjected to a series grouting as per specification. This grouting shall be adopted with a mix of proper consistency. Once the grouting is completed the top surface shall be cleaned and brought to level. The surface shall be then left for proper setting of the grout for about 48 hours. 9.20. Proper curing and safety precaution that form the integral part of the specification herein under referred shall be also followed in totality. The surface shall be ponded with water for ten days to test leakage.

10. GROUTING FOR DISTRESSED CONCRETE : 10.1. PRODUCTS :

10.1.1 All components used for grouting repair system are to be from one of the approved makes of polymers. All components are to be of the same make. No components of different makes can be used in conjunction with each other.

10.1. 2. The products shall only be from the approved list of companies.

10.1.3. Proper care is to be taken when using the material to maintain the required consistency and purity.

10.1.4. Only polymer latexes based on styrene butadiene (SBR), acrylics, or epoxies can be used. The latex should have solid to a maximum of 50% and minimum of 40%.The physical, chemical and structural properties of the material used are to be submitted and specific approval to be seeked for the material/system to be used.

10.2. SURFACE INSPECTION AND PREPARATION :

10.2.1. All surfaces to be treated are to be exposed to the base level with removal of all claddings, plasters, facades, waterproof layers etc.. The surface is to be examined for surface cracks, crevices, spalls and honey combing.

10.2.2. Concrete surface to which treatment is to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

10.2.3. Mechanical abrasion: - Use sandblasting or scarifying or water blasting or other approved means.

10.2.4. Acid etching: - Etch surface with a commercial grade (22 deg Baume) of hydrochloric acid diluted at a ratio of 10:90 to 20:80. After this application, scrub surface with a stiff bristled broom, brush, or similar implement. Immediately after foaming action of acid has subsided, flush surface with water jets until all residues is removed. Repeat procedure until laitance is completely removed. Wash such areas with water at least three times and allow to air dry prior to further treatment. This method of cleaning is to be used only in exceptional cases and under normal cases permission will not be given for use of this method.

10.2.5. Inspection of concrete surfaces prior to mortar application.

10.2.6. Inspect all concrete surfaces prior to application of mortar to ensure that requirements of this Article are met.

10.2.7. Surfaces shall be free of any deleterious materials such as laitance, curing compounds, dust, dirt, and oil. Materials resulting from surface preparation specified shall be removed.

10.2.8. All concrete surfaces shall be dry as defined below unless a water - insensitive coating is used. Surface temperature shall be at least 40F to permit wetting of concrete surface by polymer coating.

10.2.9. Evaluate moisture content for concrete by determining if moisture will collect at surfaces. This may be accomplished by taping a 4 x 4 ft polyethylene sheet to concrete surface. If moisture collects on underside of polyethylene sheet before polymer would cure, then allow concrete to dry sufficiently. Drying of the surfaces can be accomplished by either heating the surfaces by blowlamps or by use of sawdust, sand or any other means so that the surface is bone-dry.

10.2.10. Identification of method of grouting.

10.2.11. For All Surfaces Having Cracks/ Crevices

10.2.12 Locate the cracks by either surface inspection or by scrubbing the surface. In case the cracks are not visible to naked eye use compressed air to clear the crack marks. Having identified the cracks use light

chisel or mechanical/ electrical saws to clear the crack up to the depth of the crack. In case widening of the crack is necessary to reach the depth of the crack it is advisable to do so at this juncture.

10.2.13. After clearing/ widening the crack use compressed air/ water jet to clean the opened crack surface. Ensure that the surface is dried in case water jet is used.

10.2.14. A method of grouting through three rows of grout nipple is to be adopted for all such cases

11. BRICK BAT WATER PROOFING:

11.1 Removal of existing water proofing layer. All existing waterproofing layer will be removed by the contractor, wing wise using chisel and hammer. The hammer will not be used directly on the slab, chisel is to be used only in slanting manner to ensure that the chisel does not enter the slab section. Any damage to the slab will be made good using proper shuttering; steel and concrete mix 1:1.5:3. It shall be allowed to cure for 7 days before further work is undertaken.

11.2. PRE TREATMENT. After the slab top face is exposed the same shall be first broom cleaned and then water cleaned. Immediately on cleaning with water a thin slurry of cement is prepared and broomed over the entire surface and allowed to entire all cruises, cracks etc. which are grooved prior to slurry application . After the slurry coat is completed, and dried for 24 Hrs. The surface is inundated with water for 4 days to check for water tightness. In case any seepage marks appear on the 4 th day grooving is repeated before proceeding ahead. Due care is to be taken that all crevices, cracks and unevenness is properly treated.

11.3. WATER PROOF TREATMENT.

The grouted surface is cleaned of all excess inundated water and air dried 1 day, cement mortar ( 1: 3 ) with waterproofing chemical added in the ratio of 1 kg for 50kg of cement is prepared and laid evenly over the surface . Thickness of very evenly backed bricks are then hand packed in this wet mortar to create desired slope. The slope that is maintained is 1mm in 120mm ( 1” in 10’ ) . The slope should drain water into the rain water pipe. The top finished level should be at least 1mm below the bottom invert of the rain water pipe. Water is inundated on this brick laid surface for 7 days to check for water tightness and to eliminate weak brick pieces. All weak brick pieces are to be replaced by fully caked pieces. All joints of brick work are then filled with thin coat cement slurry and leveled with cement mortar (1: 3) duly mixed with water proof compound. The cement mortar is to broom finished and inundated with water for 21 days. In case of cement slurry smooth finish with marking as top finished inundation shall be done after top finish coat. China mosaic coat is applied in required design after monsoon and cleaned, finished cured complete. 12. GROUTING FOR HONEY COMBED SURFACES:

12.1 for surface which exhibits honeycombed concrete, the surface has to maintained in its dry state and a method of grouting through triangular grout nipples is to be adopted.

12.2. The opposite side to the grouting surface has to be sealed for flowing grout by either impervious cement plaster or by use of proper sealant as specified in the material to be used for grouting.

12.3. SIZE AND SPACING OF NIPPLES:

12.3.1 To determine the size of nipples use a standard calipers or a metric scale and measure the width of the opened crack. The size of the nipple to be fixed within the crack has got to be minimum half the surface width of the crack measured above but should not exceed 15 mm in dia.

12.3.2. The nipples to be used should be of metal with one end tapered and thickness should be sufficient to withstand 5 m head of water. The spacing for the crack depends inversely to the width of the crack and will not exceed more than 300mm c/c and will not be less than 125mm c/c. The number of nipples along the crack will always be 1 less than two rows of nipples that needs to be fixed parallel to the crack at the same distance as the nipples spacing in the crack so as to form equilateral triangle with the apexes in the crack.

12.4. SEQUENCE OF GROUTING :

12.4.1. For all horizontal surfaces grouting simultaneous grouting through of manifold pipe system is recommended. The grout pressure enquired to be given should be min X’ for X” of slab. For grouting vertical surface bottom most row of nipples is to be grouted simultaneously.

12.4.2. When a row or a nipple is grouted and no more grout passes through that nipple/row of nipple then that nipple/ row of nipple is to be cut and sealed.

12.4.3. After the grout in the first nipple/ row of nipple cures then subsequent row is to be treated. This process shall be continued till all the nipples/ row of nipples are grouted.

12.4.4. All the nipple /rows of nipple on that surface has to be treated before any change of direction is to be adopted. In case of change of direction the same sequence has to be adopted.

12.5. FIXING OF GROUT NIPPLES :

All nipples are to be fixed in oversize drill hole extending to min. half of slab thickness but not exceeding 2/3 of slab thickness. They should be as erect as possible and drilled holes are to be properly sealed using proper sealants (impermeable). All surface cracks are also be sealed similarly. This operation to be completed min. 24 hrs. prior to grouting operation. While using sealants epoxy based system or latex based are to be used. However combination of two will not be permitted. After the grouting operation is over remove all pipes, manifolds installed and cut all the nipples, flush to the slab base and seal them with the same sealant used for sealing the crack. Incase of exposed R.C. walls and slab surfaces cover them with appropriate quality of plaster and slurry finish the surface for smoothness. Plastering and cement slurry is to be measured and paid separately under appropriate heads in bill of quantity. (Grouting to be adopted for one surface only.)

12.6. MATERIAL FOR GROUTING :

12.6.1. Latex based polymer modified cement slurry is to be used for grouting. The ratio to be used shall be 20 kg of chemical to every bag of cement. The slurry has to be kept in its slurry form by timely stirring by manual or mechanical means at regular intervals during the process of grouting. Once the operation starts grouting should not be stopped unless the grout oozes out of the adjoining nipple or level of grout in the container does not change over a period of not more than 30 minutes.

12.6.2. All materials shall be supplied in sealed containers with labels legible and intact.

12.6.3. Contractor shall arrange to store all materials at temperatures between 5 to 30 deg. Celsius unless otherwise recommended by manufacturer.

12.6.4. All materials shall be handled in a safe manner and in a way to avoid breaking container seals.

12.6.5 Contractor shall comply with manufacturer’s recommendations as to environmental conditions under which the material can be used/ applied.

12.6.6. All grout materials shall AS PER GTS6

13. LAYERED WATER PROOFING SYSTEM:

13.1 General: The following systems as per method of application as suggested by the manufacturers are approved for application under this system of repair.

a).Thermolay Waterproofing systems. b )Isothane waterproofing systems. c.) Polymeric waterproofing systems.

13.2 Submittals: The contractor shall submit manufacturer’s certification verifying conformance to material specification as specified herein under.

13.3 Labeling Contractor shall clearly mark all containers with following information.

a). Name of Manufacturer. b) Manufacturer's product identification. c) Manufacturer's instruction for mixing d) Warning for handling and toxicity.

13.4 Application Control The contractor shall submit mixing application procedures for approval prior to use.

13.5 Product delivery, storage and handling

13.6 Delivery of Materials: Contractor shall deliver all materials in sealed containers with labels legible and intact.

13.7 Storage of materials: Contractor shall arrange to store all materials at temperatures between 5C and 30C unless otherwise recommended by manufacturer.

13.8 Handling of Materials All materials shall be handled in a safe manner and in a way to avoid breaking container seals.

13.9. PROJECT CONDITIONS :

13.9.1. Environmental Requirements: Contractor shall comply with manufacturer’s recommendations as to environmental conditions under which the epoxy compound may be applied.

13.9.2. The recommendations of the manufacturers normally are in the following manner:

13.9.3 Keep out of reach of children. The material should not be stored at a place easily accessible or within the reach of the children nor children be allowed in the vicinity of application.

Keep away from sources of ignition. All sources of light or fire should be kept away from the materials. Smoking or lighting matches is strictly prohibited in the area of material storage.

Do not breathe vapor / spray. Precautions should be taken that proper ventilation is provided in the room of storage and no person should be allowed to breathe the vapor or spray emitted from this material. Ensure good ventilation during application and drying. In case of eye contact- wash with plenty of clean water and seek medical advice. Avoid prolonged skin contact- wear suitable protective clothing and gloves. Remove from skin with mild solvent / hand cleanser and wash with warm soapy water.

If the materials contains isocyanate, Specific information should be sought from the manufacturer as to the precautions that need to be implemented.

13.10 APPLICATION :

13.10.1 ForThermolay

13.10.2. Make surface smooth, even and free from local depressions loose dirt and other foreign matter.

13.10.3. Prime the dried surface with bituminous primer and allow it to cure.

13.10.4. Apply a foundation - coat of bitumen.

13.10.5. Lay Thermo lay by torching with a pressure regulated gas torch.

13.10.6. Apply top coat of bitumen and finish with grit or coarse sand.

Note: Application methodology will depend upon site condition , end use & design characteristics of the structure under consideration.

13.10.7. ForIsothane

13.10.8 The dry film thickness (D F T) of ISOTHANE EMB. should not be less than 0.5 mm or more than 1.0 mm for each coat. Rough or textured surfaces will reduce the coverage rate and consequently more material must be allowed to achieve the minimum D.F.T.

13.10.9. ISOTHANE EMB is a membrane coating, not a paint and as such protection is only achieved with high film build, i.e. 1m m minimum. It is therefore essential that this is achieved. The membrane can be applied on one 1m m or two 0.5 mm coats. Two coats recommended on uneven and joined surfaces to minimize the possibility of thin patches, missed areas and pin holing. In the case of two coat application, it is important to recoat within 24 hours of the first coat becoming sufficiently cured to allow operator access.

13.10.10 Do not dilute ISOTHANE EMB Methodology of application should be as follows:

13.10.11. Remove all loose material by vigorous brushing, wire brush if necessary.

13.10.12. Treat any remaining fungal growth with proprietary fungicide as recommended.

13.10.13 Allow surface to dry thoroughly and any moisture contained in the structure to evaporate. ISOTHANE Special primer and EMB should not be applied to damp substrates.

13.10.14.Fill cracks and voids with a mastic sealant.

13.10.15. Prime with ISOTHANE Special primer ( 6-10 sqmtrs /It) depending on substrate texture and porosity) which cures to a slightly tacky film in 2-4 hours. Overcoat with ISOTHANE EMB as soon as possible after this time and certainly within 48 hours. If delay exceeds this, re-priming is advised.

13.10.16. Apply ISOTHANE EMB at a maximum film thickness of 0.5 mm for two- coat applications and 1 mm for one coat.

13.10.17. In the case of two coat application, the first coat should be touch dry in 12-48 hours (in some conditions this might be delayed) the second coat should be applied within 24 hours of this stage to ensure good adhesion.

13.10.18. Second coat delay :-If more than 24 hours elapse after the touch dry stage of the first coat, prime the entire surface with Special Primer and allow to dry before re-coating within 4-8 hours.

13.10.19. Day-work joints-where application extends over more than a working day, an overlap of 150mm should be used.

13.10.20. Aromatic hydrocarbon solvent should be used to clean equipment etc.

13.10.21. Spray Application: Only airless spray should be used.Graco King 60 to1 ratio or similar. Compressor: - 100 psi 60 cfmmin.Tip Size: - 28/30 thou. 60 Angle.

13.10.22 ISOTHANE EMB is easily and quickly applied manually at a rate of 40 m sq. per man hour or up to 600 m sq. per day by spray application.

13.10.23. Minor damage ISOTHANE EMB can be repaired by removing loose membrane, cleaning the surrounding area with aromatic hydrocarbon solvent overlapping by 150mm priming the area with Special Primer and finishing with two coats of ISOTHANE EMB.

13.10.24 Coverage rate may vary with surface texture and porosity. The information given is based on average usage. A site trial is recommended.

13.10.25. ISOTHANE Special Primer 6-10 m sq. / It

13.10.26. ISOTHANE EMB 1kg ( 0.8It )/ m sq. on smooth surface will provide and adequate film thickness of approx. 1mm Any surface texture will increase the surface area which must be allowed for when calculating usage - e.g. on a chipping embedded surface the actual area will be approximately doubled.

13.11 CLEAN UP :

All concrete surfaces shall be well protected beyond limits of surface receiving primer coat of mortar, against spillage.

13.12SAFETY :

Contractor shall advice all workers working with epoxies to avoid contact with eyes and skin, inhalation of vapors and ingestion. Necessary protective and safety equipment’s in the form of hand gloves, welders goggles etc. shall be provided by the contractor on site.

14. POLYMER & GROUT TECHNIQUE OF WATER PROOFING :

14.1. The following specifications need to be followed to be able to achieve the desired result of treating a porous slab section and also creating a separate water proofing layer.

14.2. Pretreatment.:

14.3. Top Surface: All the wearing coats and water proofing layer existing on the present slab should be removed and the surface properly cleaned. The original slab surface shall be properly cleaned with a water jet prior to application of any treatment. In case of the surface having carbonation or corrosion related distress, this has to be treated first without the final coat of cover built-up being done.

14.4. Bottom Surface. The plastered surface has to be cleaned and removed. The surface cleaned properly and the surface cracks are to be opened. In case of the surface having carbonation or corrosion related distress, this has to be treated first without the final coat of cover built-up being done. The cracks which are of micro and minor nature (less then 10mm thick) shall be kept open.

14.5. Pre grouting: Pre grouting shall be adopted to clean the section of any deleterious material. The mix to be used for this grouting shall be very lean and with maximum viscosity and maximum set time. This grouting is to be adopted to clean the section and once grout starts to flow from the bottom surface. All other specification of nipple placement and depth of fixation shall be as per detailed specification TS 16.

14.6 Bottom surface Sealing: Once the pregrouting is completed all cracks and crevices that are visible shall be filled with a proper crack filling sealant of approved make. The surface shall then be properly plastered with a polymer modified mortar as per specification TS 10 and brought to proper shape and size. Any other treatment preceding this step shall be taken after about four days of curing.

14.7 Grouting: The section shall then be subjected to a series grouting as per specification. This grouting shall be adopted with a mix of proper consistency. Once the grouting is completed the top surface shall be cleaned and brought to level. The surface shall be then left for proper setting of the grout for about 48 hours. 14.8. Surface Water proofing treatment. The top surface shall be treated for a two coat chemical water proofing treatment. The treatment shall be preceded by placing proper wearing coat/ layer of a material as may be essential for the usage of the slab. All wearing coat shall be placed on the top of water proofing layer in a proper manner so as not to puncture or pierce the WPL. Proper anti skid layer shall also be adopted on the wearing coat.

14.9. Proper curing and safety precaution that form the integral part of the specification herein under referred shall be also followed in totality.

15. TOILET/ WC WATER PROOFING:

15.1 Removal of existing water proofing layer.

All existing waterproofing layer will be removed by the contractor, wing wise using chisel and hammer. The hammer will not be used directly on the slab, chisel is to be used only in slanting manner to ensure that the chisel does not enter the slab section. Any damage to the slab will be made good using proper shuttering; steel and concrete mix 1:1.5:3. It shall be allowed to cure for 7 days before further work is undertaken.

15.2 Pre Treatment.

After the slab top face is exposed the same shall be first broom cleaned and then water cleaned. Immediately on cleaning with water slurry coat of cement shall be applied. Due care is to be taken that all crevices, cracks and unevenness is properly treated.

15.3 Water proof treatment.

Brickbats of varying sizes will be laid in 25 to 30mm thick cement mortar paid 1:3 in all positions with an average thickness of 100mm in proper slope not less than 20mm in 200mm feet. This layer has to be cured for 4 days. After curing layer of 40mm of Indian patent stone 1:3 is to be laid complete with curing. Waterproofing compound based on polymer of standard make to be added in both layer and chips to be laid later on. The restoration of all finishing items shall be done by the contractor.

16. SECOND COAT PLASTERING OVER TREATED AREA :

16.1 All areas where the RC section has been treated for either cover replacement or sectional repairs will require to be coated by a layer of plaster. This plaster shall be done on the surface after it has undergone complete treatment. The plaster shall have a thickness sufficient to bring the section repaired to line and level. This shall be done in single coat.

16.2 The exposed surface shall be properly raked and kept uneven to take the second coat of plaster prior to any treatment. This shall not be paid separately.

16.3 Thereafter a 25mm thick (or of required thickness) sand face plaster 1:4 in single coat shall be applied. The thickness shall be sufficient to bring the surface to line &level . In case of thickness greater than 25mm , two coats shall be used and in such case coarse aggregate shall be embedded in 1st coat at regular interval evenly all around . This shall not be paid separately . In the second coat no coarse aggregate shall be embedded and the entire repair area shall be to line & level. The surface is to be treated with polymer based bonding agent where joint exists with old plaster. Polymer based bonding agents are to be used where ever the joints exist between the RC section and the brick work.

16.4. CURING

16.4.1: All polymer treated surfaces can either be immediately covered with plain cement mortar and then cured after 12 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat of plaster.

16.4.2: All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 38degree Celsius then

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curing shall be resorted to as many times as required to keep the surface moist or to ensure the mortar temperature does not rise.

17. CRACK BRIDGING COAT:

Any paint or crack bridging coat applied as the finishing coat to the repaired portion should exhibit the following:

Crack bridging characteristics. Resistant to carbonation. Retains breathing capacity. Has an elastic and flexible property. Excellent adhesion and bonding properties. Withstands chloride ingress.

18. CERAMIC GLAZED TILES:

Ceramic glazed tiles shall be of best quality Indian manufacture or otherwise if so specified, and shall be approved by the consultants. They shall be of uniform colour and glazed. They shall not be less than 6mm thick and shall be free from warped surfaced, cracks and shall be with true edges, straight and even. They shall be laid to required slope on floors and truly vertical for walls, o a bedding of 25mm thick lime mortar and set in cement floating with close joints and well tapped to level. For walls the backing shall be of cement mortar. The joints of tiles shall have colour cement pointing, to match with the colour of tiles. The surface between the w.c. pan and the top of the tiles shall be finished in white cement along the curve of the pan, and no extra will be paid for this. After the setting operation is completed, the contractor shall remove carefully all cement etc. form the surface. The rate for the work shall be inclusive of all preparatory works . Supplying, setting and handing over neat and clean the area to be tiled. 19. O.H / SUCTION TANK REPAIR :

19.1 INTERNAL REPAIR:

Chipping internal plaster and water proofing layers from all walls and base. Scrubbing the RCC surface clean of any deleterious material. Exposing cracks in the surface and creating ‘V’ groove in the crack zone. Sealing the ‘V’ groove in the with polymeric sealant and grouting the surface around crack by gravity grouting using cement slurry mixed with additives as per approved brand and make . Allowing for setting of grout for 2 - 3 days and curing the same by proper means. After completing the process of curing, providing and applying cement plaster ( 1: 3) in 2 coats duly modified by adding proper water proof chemical ( Liquid ) of Max. thickness 25mm and finished with cement slurry coat for smooth finish . Curing the surface as required.

19.2 EXTERNAL REPAIR:

All external surfaces shall be scrapped of all plaster and RCC surface exposed. Scrubbing the RCC surface clean of any deleterious material. Exposing cracks in the surface and creating ‘V’ groove in the crack zone. Sealing the ‘V’ groove in the with polymeric sealant and grouting the surface around crack by gravity grouting using cement slurry mixed with additives as per approved brand and make . Allowing for setting of grout for 2 - 3 days and curing the same by proper means. After completing the process of curing , providing and applying cement plaster ( 1: 3) in 2 coats duly modified by adding proper water proof

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chemical ( Liquid ) of Max. thickness 25mm and finished with and face finish complete curing the surface as required . 20. CI PIPES

20.1. Material: -All C.I. pipes and fittings shall be centrifugally casted as per IS specifications with spigot and socket ends. All pies and fittings are having manufacturer’s name and label. The dimensions are accurately as per standard specifications. The same specifications shall be adopted for both removing &refixing& and also for removing & providing required pipe lines.

20.2. Removing:- Removal of CI pipes and fitting are to be very carefully by chiseling .Necessary openings shall provided on wall which will sealed with cement mortar at free of cost after the refitting were done. The users are to be informed as early as possible and probable time taken for completion will informed to them by the concerned contractor.

20.3. Refitting :- After the completion of the sand face plaster as per IS or as directed by the engineer refitting to be done All pipes were clipped 50mm away from wall by providing appropriate spacer block and with nails which shall be drill driven .The joints shall be sealed properly with out leakage’s . Necessary fittings are to be fitted and alignment should be maintained in case new pipes are to be fitting, appropriate IS brand approved shall be used.

Detection of cracks in pipes:- All pipes and fittings shall be inspected carefully before being laid . Broken or defective pipes shall not be used and removed from the site of work pipes shall be rung with a light hammer preferably while suspended to detect cracks . If doubt persists , confirmation may be obtained by pouring a little paraffin on the inside of the pipe at the suspected spot , if a crack is present ,the paraffin seeps through and shows on the outer surface.

Preparing pipes: - The pipes shall be carefully cleared of all foreign matter before being laid. They shall be thoroughly brushed out internally with a well fitting hard brush, and after laying, the open end shall be temporarily plugged to prevent ingress of water, soil, etc. precautions shall be taken to prevent damage to pipes.

Sealing of Joint: - Jointing of CI pipes and fixtures shall be done by cement paste and finished by sodium silicate solution. The joints shall be carefully sealed and tested for leakage.

Painting: All plumbing lines shall be provided with appropriate paint in 2 coat properly finished complete

21. PVC PIPES :

PVC pipes shall conform to IS specification for high-density polyethylene pipes for drainage work. The pipes shall have smooth internal and external surfaces. Slight shallow longitudinal grooves or irregularities in the wall thickness shall be permissible provided that the wall thickness remains within the permissible limits .PVC pipes shall be pressure ratings (working pressure) as indicated. The pipes shall carry colour bands to indicate the class of pipes.

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Class of pipes Working pressure Colour MPa Class 1 0.2 Orange Class 2 0.25 Red Class 3 0.4 Blue Class 4 0.6 Green Class 5 1 Yellow

PVC pipes: - PVC pipes shall confirm to IS 4985 - 1981, Specification for PVC pipes for potable water supply. The pipes shall be reasonably round. Internal and external surfaces of the pipes shall be smooth and clean, PVC pipes shall be pressure ratings (working pressure) as 2 - 5, 4.5 and 10Kg / sq cm. as indicated.

Jointing of PVC pipes Solvent welded joints:- This technique is used with both All relevant specifications as outings under IS 60 for removal, refixing cleaning, painting etc.

22. CHAMBER/ SOAK PIT REPAIRS:

22.1 Manholes: Manholes shall be built at every change of alignment, gradient or diameter of a drain, or where directed. Bends and junctions in the drains shall be grouped together in manholes. The maximum distance between manholes shall be 45 m for pipes up to 300mm dia and 75m for pipes up to 500 mm dia, and 90 m for pipes up to 900mm.

Manholes of different types and sizes as indicated shall be constructed in the sewer line at such places and to such levels and dimensions as shown in the drawing or as directed by the Engineer - in- charge.

Where the diameter of the drain is increased, the crown of the pipe shall be fixed at the same level and necessary slope given in the invert of the manhole chamber. In exceptional cases, where unavoidable the crown of the branch sewer may be fixed at lower level but in such cases the peak flow level of the two sewers shall be kept the same.

The branch sewers shall deliver sewage in the manhole in the direction of main flow and the junction must be made with care so that flow in the main is not impeded.

No drain from house fittings e.g. gully trap or soil pipe, to manhole shall be normally exceed a length of 6m unless it is unavoidable.

Excavation. The manhole shall be excavated true to dimensions and levels shown on the planes or directed by the EIC.

22.2. Bed Concrete -The manhole shall be built on a bed of cement concrete 1:3:6 type C2, or 1:2:4 type B2 where indicated. The thickness of the bed concrete shall be 20cm for manholes up to 4.25m depth and 30 cm for depths beyond 4.25 m unless otherwise indicated or directed y the EIC. In bad ground, Special foundations as suitable shall e provided.

22.3. Brick Work -The brick work shall be with sub-class B bricks in cement and sand mortar. The external joints of the brick masonry shall be finished flush, and the joints of the pipes and the masonry shall be made perfectly leak proof . For arched type and circular manholes brick masonry in the arches

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and arching over the pipes shall be in cement and sand mortar 1:3 . In the case of manholes of circular type the excess shaft shall be corbelled inwardly on three sides at the top to reduce its size to the cover frame to be fitted. Specification for the types of masonry shall be indicated.

22.4. Plaster and Pointing -The walls of the manholes shall be plastered inside with 15mm thick cement plaster 1:3 finished smooth. Where saturated soil is met with the external surface of the walls of the manholes shall also be plastered with 15mm thick cement plaster 1: 3 finished smooth . The plaster shall further be water proofed where indicated with addition of approved integral water proofing compound in a quantity as indicated.

22.5. Benching -The channels and benching shall be done in cement concrete 1:2:4, type B1 rendered smooth with extra cement. The depths of channels and benching shall be as under:

Size of Drain Top channel at the center above bed concrete

Depth of benching of side walls above bed concrete mm Cm cm 100 15 20 150 20 30 200 25 35 250 30 40 300 35 45 350 40 50 400 45 55 450 50 60

22.6. Steps -All manholes deeper than 0.8 m shall be provided with steps. These shall be embedded 20cm deep with 20x20x10cm blocks of cement concrete 1:3:6 type Cl. The block with foot rest placed, in its center shall be cast in situ along with the masonry.

22.7. Manhole Covers and Frame -The frame of manhole shall be firmly embedded to correct alignment and levels in R. C. C. slab or plain concrete as the case may be . Before completion of work manhole covers shall be sealed by means of thick grease.

22.8. MILD STEEL TUBES (PIPES) AND FITTINGS

22.8.1. Mild Steel Tubes - shall comply with IS -1239 (Part -I) - 1979, Specification for mild steel tube tubular and other wrought steel fittings, Part I mid steel tubes. These shall be hot finished welded, electric resistance welded, or high frequency induction welded pipes, galvanized, and screwed and socketed. The tubes shall be of light medium or heavy grade as indicated. Each tube shall be supplied with one socket. The end of socket shall be chamfered invernally to prevent damage to the leading thread. Tubes shall be distinguished by colour bands, light tubes with yellow, medium tubes with blue and heavy tubes with red bands.

22.8.2 Tolerance - Permissible tolerance on the weight of steel tubes shall be as under:

1. Single tube irrespective of the quantity (+) 10 percent (- ) 8 percent 2. For quantities of less than 150 m of one size (+) 10 percent (-) 8 percent 3. For quantities of 150m and over of one size (+) 4 percent

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22.8.3 Tubular and Fittings - Mild steel tubular and other wrought steel fittings for sue with mild steel tubes shall be galvanized, complying with IS 1239 (Part II) - 1982 for mild steel tubular and other wrought fittings. These may be built welded or seamless. Fittings may alternately comply with the requirements of IS 1879 (Parts I to X)- 1975 Specification for amalleable cast iron pipe fittings. These fittings shall be galvanized.

Tubes and fittings shall be cleanly finished, well galvanized in and out , reasonably straight and shall be free from scale, cracks, surface flaws, laminations and other defects, Zinc coating shall be uniformly, adherent, reasonably smooth and free from such imperfections as flux, dross inclusions, bare patches, pimples, limping, runs, rust stains and blishers. All screw threads shall be clean and well cut the end shall be cut cleanly and square with the axis of tubes. Screwed tubes shall have taper threads while the sockets shall have parallel threads.

Tubes of any grade and fittings shall withstand a test hydraulic pressure of 5 Mpa without showing defects of any kind.

23. DRAINS PIPES :

23.1. Excavation: -as per relevant technical specification.

23.2. The bottom of every trench shall have true grade throughout and shall be made in perfectly straight lines, as shown on the plans, or as may be directed by the Engineer. In case of any loose, soft or bad ground being met with it shall be excavated to a solid foundation and filled up to the level of the sewer with concrete or as may be otherwise directed by the Engineer.

23.3. In the floor of every sewer trench not specified or ordered to be concreted, as joint hole shall be formed for receiving not only the socket of the pipes, but the mass of clay to be placed all round every joint of the sewer not concreted. In all cases, except where otherwise specifically ordered, the trenches for the sewers under twelve feet shall be opened out.

23.4. In excavating any trench, the materials forming the surface of any road, foot-path, garden or field, shall be kept separate and preserved for re-use at the surface when the trench is filled up. Before any road-metal is re-used it shall be carefully shifted. 23.5. After the foundations of any building or other works have been constructed, or the sewer or drain and other pipe have been laid and jointed or the sewer constructed and the manholes and ventilators are made and as soon as the joints have inspected and passed by the Engineer or his Assistants, the trenches shall be re-filled with the materials taken there from. In re-filling the trenches, the utmost care shall be exercised so as not to disturbs break or damage then jointed pipes, and immediately over and around every pipe the finest selected material shall be put. No lumps of rock, earth or other material shall be put round the pipe or be thrown into the trenches until the same has been protected by the fine material before referred to. The ground, as it is being filled into the trenches, shall be rammed until it is completely consolidated and water should be used in addition, if considered necessary by then Engineer, to aid in the consolidation of the trenches. Very great care shall be exercised so that trenches are filled in solidly under the pipes with selected material and that no damage is done to the pipe during then process of consolidation.

23.6. When the contractor is directed to supply pipes they shall be of the following description. The pipe used in thenworks shall be the best and of approved quality. All pipes shall be perfectly airtight and truly cylindrical, glazed inside and outside, free from cracks and flaws, and perfectly burnt. Those not perfectly straight and truly cylindrical, well and uniformly glazed, free from cracks and flaws and perfectly burnt, shall be rejected.

23.7. All pipes in trenches over 4.5 meters deep and all those in loose ground shall be protected with concrete all round.

23.8. In laying the drains care must be taken that they are laid perfectly true to the inclination, and as far possible, straight from point to point of the manholes, ventilators or lamp holes, and that all pipes are carefully laid and packed underneath so as to guard against subsidence or fracture of the pipes.

23.9. The stoneware pipe shall be jointed by forcing two stands of tarred gaskets into the joints, the strands to be sufficiently thick to tightly fit the annular space between the sockets and spigots. The annular space shall then be solidly filled with neat Portland cement which shall be forced into the socket, so s to fill it and fillet of cement shall then be worked round the outside of the joint. This fillet shall be kept in position by a bend of coarse cloth, which shall be kept moist until the cement has set. Every joint of the earthenware pipes, which is not concreted shall be further protected by placing, on the outside of the joint of cement, well tempered and tenacious clay, so as to completely surround the joint. For this purpose, not less than the following quantities of clay shall be used for every joint on a (6 inch) 152.397 mm. pipe, 1/2 cubic feet 14158.0 c.c; 8 inch 203.196 mm. pipe, (3/4" cubic feet) 21237.00 c.c. 9 inch 228.586 mm. pipe, 1 cubic feet 28317 c.c.: (10 inch) 253.995 mm. pipe, (1 1/4 cubic feet) 35400.0 c.c.

23.10. After the joints have thoroughly set, the Engineer or his Assistant may inspect the joints, and if he has any doubt as their soundness, he may require the Contractor to cut open and clear away the cement of any joint that he may selected unless some defect be found they shall not be required to open more than one joint in 60 feet (18 meters) of pipe though if defects be found, the Engineer may direct them to open as many joints as he may deem necessary. The joints made on one day will not as a rule, be inspected until the following day and the cement may have a sufficient time to set well before being covered up.

23.11. The concrete shall be described in a separate specification under that head.

23.12. Testing of Joints of Drainage Pipes and Fittings : Note : The joints of drainage pipes and fittings will be tested by the contractors without any extra charge to the Municipality as per the specifications described below

Smoke Test : All soil pipes, waste pipes and vent pipes and all other pipes when above ground shall be tested for gas tightness by smoke test under a pressure of 25 mm. of water and maintained for 15 minutes after all trap seals have been filled with water. The smoke is produced by burning oily waste or tar paper in smoke machine. Chemical smokes are not satisfactory.

Water Test ; Glazed ware and concrete pipes shall be subject to a test pressure of at least 1.5 m. head of water at the highest point of the Section under Test. The tolerance figure of 2 Liters/cm. of dia./km may be allowed during a period of ten minutes. The test shall be carried out by suitably, plugging the low end of the drains and the ends of the drain and the ends of the connection if any, and filling the system with water. A kunckle bend shall be temporarily jointed at the top end and a sufficient length of vertical pipes jointed to it so as to provide the required test head. Or the top end may be plugged with connection to hose, ending in a funnel which could be raised or lowered until required head is obtained and fixed suitably for observation.

Subsidence of the water level may be due to one or more of the following causes -

a) Absorption by pipes and joints.

b) Sweating of pipes or joints.

c) Leakage at joints or from defective pipes and

d) Trapped air.

Allowance shall be made for (a) above by adding water until absorption has ceased after which the test should be commenced. Any leakage will be visible and the defective part of the work should be cut and made good. But excessive sweating from particular pipe or joint shall be watched for taken as indicating a defect, to be made good. Complete records shall be kept of all tests carried out of drains both during construction and after being put into service.

24. G. I. PIPES:

24.1 G .I . Pipes and sockets.

Materials. The pipes shall be galvanized mild steel welded pipes and seamless, screwed and socketed tubes conforming to the requirement of I. S. 1239 - 1964 for medium grade. They shall be of the diameter (nominal bore) specified in the description of the item. The respective nominal bores of the pipes for which they are intended shall design the sockets.

The pipes and sockets shall be cleanly finished, well galvanized in and out and free from cracks, surface flaws, laminations, and other defects. All screw threads shall be clean and well cut. The ends shall be cut cleanly, and square with the axis of the tube. The details of pipes and sockets regarding nominal bore, thickness and in Kg /m are given in the Table below: -

TABLE: (Particulars of medium grade G. I. Pipes) Nominal bore Dimensions of pipes Thickness Dimensions of ordinary sockets Weight of pipe Outside dia Max Min App. outside dia Min length Plain end Mm mm mm mm mm mm Kg/m 15 21.8 21.0 2.65 26.90 34 1.21 20 27.3 26.5 2.65 33.7 36 1.57 25 34.2 33.3 3.25 42.6 43 2.42 32 42.9 42.0 3.25 51.0 48 3.11 40 48.8 47.9 3.25 57.0 48 3.59 50 60.8 59.7 3.65 70.0 56 5.07 65 76.6 75.3 3.65 88.9 65 6.49 80 89.5 88.0 4.05 101.6 71 8.43 The following manufacturing tolerances shall be permitted on tubes and sockets in additions to those indicated in the table above.

( a) TUBES (1) THICKNESS (i) Medium Tubes Butt Welded + Note limited - 10 per cent Medium Tubes Seamless + Note limited ` - 12.5 per cent (2) WEIGHT (i) For quantities of 150m and over of one size + / - 4 per cent (ii) Single tube + 10 per cent -8 per cent (b) SOCKETS out side diameter + / - 2.5 per cent All screwed tubes and sockets shall have pipe threads conforming to the requirements of I .S . 554 \_ 1955 (or revised) screwed tubes shall have taper threads while the sockets shall have parallel threads.

24.2 Pipe fittings: - The fittings shall be of malleable cast iron or mild steel tubes complying with all the appropriate requirements given as specified . The respective nominal bores of the pipes for which they are intended shall design the fittings. The fittings shall have screw threads at the ends conforming to the requirements of I.S. 554 \_1955 (or revised) . Female threads on fitting shall be parallel and male threads ( except on running nipples and collars of unions ) shall be tapper . 24.3Cutting, laying and joining: - The pipes and fittings shall be inspected at site before use to ascertain that they conform to the specification given above. The defective pipes shall be rejected. Where the pipes have to be cut or rethreaded, the ends shall be carefully filed out so that no obstruction to bore is offered. The end of the pipes shall then threaded conforming to the requirements of I. S 554 - 1955 with pipes dies and taps carefully in such a manner as will not result in slackness of joints when two pieces are screwed together. The taps and dies shall be used only for straightening screw threads which have become bent or damaged and shall not be use for turning of the threads so as to make them slack, as the later procedure may not result in a water tight joint. The screw threads of pipes and fitting shall be protected from damage until they are fitted.

The pipes shall be cleaned and cleared of all foreign matter before being laid. In jointing the pipes, the inside of the socket and the screwed end of the pipes shall be oiled and rubbed over with white lead and a few turns of spun yarn wrapped round the screwed end of the pipe. The end shall then be screwed in the socket, Tee etc. with the pipe wrench. Care should be taken that all pipes and fittings are properly jointed so as to make the joints completely water tight and pipes are kept at all times free from dust and dirt during fixing. Burr from the joint shall be removed after screwing. After laying, the open ends of the pipes shall be temporarily plugged to prevent access of water, soil or any other foreign matter. Any threads exposed after jointing shall be painted or in the case of under ground piping thickly coated with approved anticorrosive paint to prevent corrosion.

24.4 Internal work: For internal work the galvanized iron pipes and fittings shall run on the surface of the walls or ceiling (not in chase) unless otherwise specified. The fixing shall be done by means of standard pattern holder bat clamps, keeping the pipes about 1.5cm clear of the wall. When it is found necessary to conceal the pipes chasing may be adopted or pipes fixed in the ducts or recesses etc. provided there is sufficient space to work on the pipes with the usual tools. The pipes shall not ordinarily be buried in walls or solid floors. Where unavoidable pipes may be buried for short distances provided adequate protection is given against damage and where so required joints are not buried. Where directed by the Engineer-incharge, a M. S. tube sleeve shall be fixed at a place a pipe is passing through a wall or floor for reception of the pipe and to allow freedom for expansion and con

25. TRAP REPLACING:

25.1 S. W. GULLY TRAP :

Gully traps shall confirm to IS : 651- 1965 . These shall be sound, free from visible defects such as fire cracks , or hair cracks . The glaze of the traps shall be free from crazing. They shall give a sharp clear note when struck with light hammer. There shall be no broken blisters.

Each gully trap shall be have C .I .grating of square or circular size corresponding to the dimensions of inlet of gully trap . It will also have a water tight C .I .cover with frame inside dimensions 300 x 300 mm the cover weighing not less than 4.53kg and the frame not less than 2.72 kg . The grating , cover and frame shall be of sound and good casting and shall have truly squire machined seating faces .

25.2. EXCAVATION :

The excavation for gully trap shall be done true to dimensions and levels as indicated on plans or as directed by the Engineer - in - charge. This work shall generally do as per specifications.

25.3. FIXING:

The gully trap shall be fixed on cement concrete foundation 65 cm square and not less than 10 cm thick. The mix for concrete will be 1 : 5: 10 ( 1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size ) . The joining of gully outlet to the branch drain shall be done similar to joining of S .W .pipes .

26. BRICK MASONRY CHAMBER:

After fixing and testing gully and branch drain, a brick masonry chamber 300 x 300 mm (Inside) in second class bricks in cement mortar 1 : 5 ( 1 cement : 5 fine sand ) shall be built with a 10 cm brick work round the gully trap from the top of the bed concrete upto ground level . The space between the chamber walls and the trap shall be filled in with cement concrete 1:5: 10 (1 cement: 5 fine sand: 10 graded stone aggregate 40 mm nominal size). The upper portion of the chamber i.e. above the top level of the trap shall be plastered inside with cement mortar 1:3 ( 1 cement : 3 coarse sand ) , finished with a floating coat of neat cement . The corners and bottom of the chamber shall be rounded off so as to slope towards the grating. C . I cover with frame 300 x 300 mm ( Inside ) shall then be fixed on the top of the brick masonry with cement concrete to 1:2: 4 ( 1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size ) and rendered smooth . The finished top of cover shall be left about 4 cm above the adjoining ground level so as to exclude the surface water from entering the gully trap.

26.1. MEASUREMENTS:

The work shall be enumerated. Excavation shall be measured separately under relevant items of earthwork.

26.2. RATES:

The rates shall include the cost of materials and labour involved in all the operations described above.

26.3. TRAPS P AND S TYPE

Traps for wash basins sinks, and baths shall be of cast copper alloy, chromium plated conforming to IS 5119 - 1969, specification for cast copper alloys traps, part P, S traps, and I.

26.4. BOTTLE TRAPS

Copper alloy traps shall be of brass with copper content not less than 56% conforming IS 5219 - 1969. The traps shall be polished or chromium plated as indicated. Galvanized malleable iron traps shall be of approved manufacture. Traps for lavatory basins and sinks shall have one inspection eye , fitted with screw plug and washer , while for baths , the traps shall have branches screwed externally , one of which shall be fitted with washed cap and other with a bent tail pipe and union nut for overflow connection . A loose coupling nut shall be fitted to the inlet for coupling to the waste and the outlet shall be either plain tails for lead pipe or screwed with pipe thread and provided with union tail end pipe. The minimum depth of seal shall be 35mm.

27 .CAST IRON SOIL, AND VENTILATING PIPES

27.1. They shall comply either with IS 1729 - 1979 , specification for sand cast iron spigt and socket soil , waste and ventilating pipes , fittings and accessories or with IS 3989 - 1984 , specification for centrifugal cast (spun) iron spigot and socket soil waste and ventilating pipes fittings and accessories shall conform to the particular standard.

27.2. Pipe & fitting shall be without ears. Where pipes & fitting with ears are indicated they shall have the following projections, measured from the outer surface of pipe or fitting to the face of the ears . 50and 75 mm dia 32mm 100 and 150.mm dia 38mm 27.3. Pipe and filling shall be sound & free from defects other than any unavoidable surface imperfection, which are inevitable as a consequence of manufacturing process & are in no way harmful to their use. Pipes & fitting shall be such that may be cut drilled or machined .Each pipe shall be tested for soundness by striking with a light hand hammer & shall emit a clear ringing sound.

27.4. All pipes & fitting shall be coated externally & internally with a composition having tar or other similar base. The coating material shall have good adherence & shall not scale off. In case pipe & fitting are imperfectly coated or where the coating has not set , the coating shall be removed & the pipe & fitting recoated.

27.5. The tolerance permissible on weight shall be (-) 10%. Pipes & fitting weighting more than the nominal weight may be accepted provided they comply in every other respect with the requirements of the standard without any price adjustment

27.6. Pipe nails shall be galvanized, chisel pointed, with 8mm dia shank and 18mm dia head pipe nails shall be 100mm long for pipes upto 100mm long for pipes upto 100mm dia and 150mm long for 150mm dia pipes. C I Cowls Cast iron cowls shall conform to IS 3889 - ,1984 and shall approximately weigh 1Kg , 1.5Kg ,2.7Kg and 5.8Kg for pipes of nominal diameters 50mm ,and 75mm, 100mm and 150mm respectively.

27.7. NAHANI TRAPS

Cast iron nhani traps shall conform to IS 3989 - 1984 and shall have outlets of nominal diameter 50mm and 75mm as indicated. Approximate weight of nhani traps shall be not less than 5.50Kg and 6.50Kg for traps with outlet dia of 50mm and 75mm respectively. nhani shall be provided with cast iron grating.

27.9. FLOOR TRAPS

Cast iron floor traps shall conform to IS 3989 - 1984 and shall have outlet diameters of 50mm, 75mm and 100mm. Weight of floor traps shall be less than 2.50Kg, 4.8Kg and 7.5Kg for traps with outlets dia of 50mm , 75mm , and 100mm , respectively . Floor trap shall be provided with cast iron grating .

27.8. ASBESTOS CEMENT SOIL , WASTE AND VENT PIPES AND FITTINGS

Asbestos cement Building pipes and pipe fittings , Gutters and Gutter fittings and Roofing fittings shall comply with IS 1626 (Part I , II , III ) - 1980- 81 roofing fittings .The socketed asbestos cement building and sanitary pipes and pipefitting shall be used as rain water pipes , soil waste and ventilating pipes . Thickness : The nominal thickness of pipes and pipe fittings shall not be less than values given in table 1 Table 1 Thickness of pipes and fittings and tolerances on thickness . Sr. No. Nominal Diameter of pipe and pipe fittings Thickness of pipe or pipe fittings Tolerance on Thickness 1 50mm 6.5mm \_+ 1.0 2 60mm 6.5mm \_+ 1.0 3 80mm 8.0mm \_+ 1.0 4 100mm 8.0mm \_+ 1.0 5 150mm 9.5mm \_+ 1.5

27.11. Salt Glazed stoneware pipes, fittings and gully Traps

27.11.1 Salt glazed stoneware pipes, fittings and gully traps shall comply with the requirement of IS 651 - 1980, specification for salt glazed stoneware pipes and fittings . Pipes and fittings shall be of quality Grade A or Grade AA where indicated. Note : Grade A pipes and fittings : Pipes which comply in every respect in every respect with the requirement of IS 651 - 1980 , but of which only 5% have been submitted to hydraulic test by the manufacture and found satisfactory , shall be classified as Grade A fittings in this class are not subject to hydraulic test . Note 2 : Grade AA pipes and fitting : Pipes and fittings normally forming part of a pipe line such as tapers ,bends ,junctions etc. which comply in every respect with the requirements of IS 651-1980 and all of which have satisfactorily passed the hydraulic test conducted by the manufacturer , shall be classified as Grade AA . Such pipes and fittings shall bear the word Grade AA. Note 3: Classification of Grade A and Grade AA does not apply to fittings which do not form part of normal pipe line such as channels and their junctions and bends , intercepts and gully traps .

27.11.2. All pipes and fittings shall be sound , free from visible defects which may affect their strength , durability and serviceability . The glaze shall b free from crazing. The pipes shall give a sharp, clear note when struck with a light hammer . The acceptance criteria shall be as per IS 651 - 1980.

27.11.3 Gully trap may be round or squire moulded with P, Q or S type outlets as required.

28. SAND FACE PLASTERING:

28.1 All external surfaces where ever the plaster is loose and detached from the surface of wall in places where the cracks exists in close proximity (max. distance is less than 1 running feet) or the crack is of dimension exceeding 7.5mm in width the area will be treated by patch plaster. The original plaster of such area is to be removed to a min 150mm distance beyond the affected area. Else where the cracks are closer and the surfaces show extensive crazing or if the original plastered surface is above 20 years old, or exhibits extensive seepage, the entire surface shall be scrapped of its original plaster.

28.2 The exposed surface shall be properly raked prior to any treatment. Wherever the pointing of the wall panels is ineffective or loose fresh pointing shall be done. This shall not be paid separately. The surface cleaned with water twice, all wall joints refilled and these joints are sprayed with a thin layer of cement slurry. Then the entire surface to be plastered shall be coated with a bond coat as specified. If a bond coat is specified as a pre plaster treatment it shall be paid separately. However where no separate chemical bond coat is specified, the surface shall be treated to a bond coat of cement slurry just prior to application of cement plaster. Under no condition shall the first coat of the plaster be applied on dry bond coat. No additional payment shall be made for cement slurry bond coat.

28.3. Thereafter a 25mm thick sand face plaster 1:3 in two coats shall be appointed with water proofing compound in 1st coat from outside. First coat shall be of minimum 12 mm thick and maximum 20 mm thick. The second coat shall be minimum 8mm thick and maximum 12 mm thick. Under no circumstances shall the plaster be less then 25mm thick. In case of internal plastering the thickness can be 20 mm only. As a precaution for/towards seepages use of water proofing agents is suggested as specified above. The surface is to be treated with polymer based bonding agent where joint exists with old plaster. Polymer based bonding agents are to be used where ever the joints exist between the RC section and the brick work. The joint shall be treated with 2 coats of bonding agent applied by brush .

28.4: CURING 28.4.1: All polymer treated surfaces can either be immediately covered with plain cement mortar and then cured after 12 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat of plaster.

28.4.2: All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 38degree Celsius then curing shall be resorted to as many times as required to keep the surface moist or to ensure the mortar temperature does not rise. curing shall be done in the clean water avoid of any acidic impurities.

29. PAINTING.

29.1. EXTERNAL PAINTING

29.1.1 ACRYLIC OR ELASTOMERIC PAINT ON PLASTERING : Paints shall be of approved brand and manufacture and of the required shades as approved by BANK. They shall conform in all respects to the relevant I.S. specifications.

 When painting on plaster surface the surface shall first be cleaned, rendered free from dust or dirt and rubbed smooth by means of wire brush, etc., to the satisfaction of the consultants/Architects / Structural Consultant engineer, before the primer coat applied evenly.

 Cracks and nail heads shall then be stopped with crack filler, and irregularities reduced with sand paper and stone.

 The paint shall be mixed in the proportion as per the Manufacturers Direction . After the primary coat, a second coat of paint shall be evenly applied when directed and finished smooth. Paint to be applied evenly and properly with approved brushes. No hair marks from the brush should be left on any part of the work.

 Each coat of the paint shall be allowed to dry completely before the next coat is applied, and all except the last shall be lightly rubbed down with pumice stone.

29.1.2 White washing Fresh white lime slacked at site of work should be mixed with sufficient water to make a thin cream. The approximate quantity of water required in making the cream is 5 liters of water to 1 kg of lime. It shall then be screened through a coarse cloth and gum (glue) in the proportion of 100 grams of gum to 16 liters (three chattacks of gum to 6 gallons) of wash shall be added. The surface should be dry and thoroughly cleaned from dust and dirt. The wash shall be applied with ‘moonj’ or jute brush, vertically and horizontally alternately and the wash kept stirred in the container while using. Two or three coats shall be applied as specified and each coat shall be perfectly dry before the succeeding coat is applied over it. After finishing the surface shall be of uniform colour. The white wash should not splash on the floor and other surfaces. In old surface the surface should be cleaned and repaired with cement mortar where necessary and allowed to dry before white wash is applied. For final coat blue pigment powder should be mixed to the required quantity with the lime water to give a bright white surface.

29.1.3 Colour washing Colour wash shall be prepared with fresh slaked white lime mixed with water to make thin cream adding the coloured pigment to the required quantity to give the required tint. Gum (glue) in the proportion of 100 gm of gum to 16 liters (three chattacks of gum to six gallons) of wash shall be added. The colour wash may be applied one or two coats as specified. The method of application should be same as for white washing (item 17). For new work the priming coat shall be of white wash.

29.1.4. Distempering: The distemper shall be of best quality and the colour should be as specified. The distemper should be mixed and prepared and water added, as laid down in the instructions of the manufacturer. First a paste is made by adding little hot water to the distemper powder and stirred thoroughly, and the paste is allowed to stand for a few minutes. The paste is then thinned with water to have a thin cream to the consistency of oil plant and stirred thoroughly all the time while applying. If the surface is rough, it should be smoothened with sand paper.

The surface must be perfectly dry before distempering is commenced. In new cement plaster the surface shall be washed over with a solution of zinc sulphate, one kg zinc sulphate in 10 liters of water and then allowed to dry. In old surface, the surface shall be repaired with plaster of paris where required and then whole surface sand papered and washed and allowed to dry.

The number of coats shall be two or as specified. The distemper shall be kept well stirred in containers and shall be applied with broad brushes first horizontally and immediately crossed vertically. Brushing should not be continued too long to avoid brush marks. The second coat shall be applied after the first coat is dried up. After each day’s work the brushes shall be washed and kept dry. Distempering should be done during dry weather but not during too hot weather, not wet weather.

30: OIL BOUND DESTEMPER PAINTING:

Oil distemper:- Oil distemper is similar to ordinary dry distemper in powder form. In the oil distemper compound (dry powder) oil is mixed by the manufacturer while manufacturing. For application of oil distemper it is mixed with the required quantity of water and then applied on the surface. The methods of preparation and application are similar as described above.

31 : OIL PAINTING ON PLASTERING:

31.1. When painting on plaster surface the surface shall first be cleaned, rendered free from dust or dirt and rubbed smooth by means of sand paper or pumice stone, to the satisfaction of the consultants, before the priming coat of zinc white being applied evenly.

31.2.Cracks and nail heads shall then be stopped with putty, and irregularities reduced with sand paper and stone.

31.3.Iron work shall be first thoroughly cleaned from loose dirt and rust, after which red lead paint alone shall be used as priming.

31.4.The paint shall be mixed in the proportion of one kg. of zinc or lead white to 1/2kg. of linseed oil and driers and pigments added as required. After the primary coat, a second coat of paint with the addition of pigment shall be evenly applied when directed and finished smooth. Paint to be applied evenly and properly with approved brushes. No hair marks from the brush should be left on any part of the work.

31.5.Each coat of the paint shall be allowed to dry completely before the next coat is applied, and all except the last shall be lightly rubbed down with pumice stone.

31.6.Putty shall be prepared from the best whiting and boiled linseed oil well kneaded together with a proportion of not less than 10% white lead ground in oil and worked into it during preparation.

32: CRACK FILLING:

32.1. Cutting: All surfaces are to be inspected thoroughly and marked the crack . opening of crack should be done carefully by mechanical wheel cutter to “V” shape . the depth shall be up to 2-4mm width shall be 3mm . the power shall be supply by the Bank at free of cost.

32.2. Cleaning Cleaning shall be done as per given technical specification.

32.3. Filling Material: Materials are as per MS .The chemical used should have elastic property

Proportion: The mixing will be done in the ratio of 1:1:1/2 [Cement : Sand (dry) : Polymer] to make paste consistency

Method: The paste should place into the crack by hand and fill it without leaving voids.

32.4. Finishing: The filled surface should be finished by cement past by brushing to match the surface

33: PATCH REPAIRS:

For repairing concrete with cement mortar/concrete trowel ling

33.1. Materials Materials are as per GTS 6

33.2 Mix design The mortar/concrete mix required shall be developed by laboratory tests and field trials. The laboratory trial mixes shall contain the same ingredients and raw materials that are earmarked for use on the job. The water cement ratio for mortar/concrete shall be within the range of 0.35 to 0.40 by mass, minimum cement content shall be 400 kg/cu.m of mix and 28 days target strength shall be so designed so as to obtain a 28 days characteristic strength of 25N/mm2 during actual work.

33.3 Application of mortar/concrete

33.4 Preparation of surface : A good base of foundation shall be prepared for successful application of mortar /concrete.

33.5 All unsound/weak concrete material shall be first removed by the contractor upto the required depth as directed by engineer. Chipping shall continue until there are no offsets in the cavity which will cause an abrupt change in the thickness of repaired surface. No square shoulders shall be left at the perimeter of the cavity, all edges shall be tapered. The final cube surface shall be critically examined to make sure that it is sound and properly shaped.

33.6 After it has been ensured that the surface to which mortar/ concrete is to be bonded, is sound, it shall be cleaned off all loose and foreign material by means of sand blasting or stiff wire brushing as instructed by engineer. All dust and loose particles resulting from such pre-treatments shall be removed by oil free air blast.

33.7 Bonding slurry and application : The contractor shall wet down the surfaces ensuring that they are saturated but free of surface water. A bonding slurry shall be prepared by mixing thoroughly 2 parts of cement to 1 part of water to a lumpfree consistency.

33.8 Application of cement mortar/concrete :

Cement shall be properly mixed with fine aggregates and water. The mixing shall be carried out in efficient concrete mixer. However, the engineer may allow hand mixing in case total weight of mix per batch is less than 50 kgs. In case of hand mixing 10% additional cement shall be mixed by the contractor.

The mixer shall be charged with the required quantity of coarse aggregate (where used), fine aggregates, cement and premixing shall be carried out for approximately half a minute. Required quantity of water shall then be added and further mixing shall be carried out for 1 to 1-1/2 minutes to obtain working consistency. Care shall be taken to avoid excessive water.

Rendering cement mortar/concrete shall be done after applying bonding polymer to the prepared surface while the bonding coat is still tacky. After application of mortar/concrete the surface shall be closed using a wooden float and steel trowel giving it a smooth finish.

33.9 Curing Cement mortar/concrete trowel led surfaces shall be kept continuously wet for at least 7 days.

33.10Inspection and quality control The mortar/ concrete application work shall be continuously inspected by a qualified supervisor who shall check materials, application of mortar/concrete, stoppage of work during low and high temperatures (working temperature range being 10C to 38C) and high winds etc. Each completed work of cement mortar/concrete shall be systematically sounded with hammer to check for dummy areas after hardening. In all suspect areas, the contractor at the instruction of engineer dismantle the work and re do the same after re-preparing the surfaces by chipping off mortar/ concrete work and abrading slurry interface. In addition mortar/ concrete cubes prepared by filling 15cm cube moulds shall also be used for day to day quality control tests. The frequency of testing shall be as per IS:456. The mortar/concrete shall be deemed to comply with the strength requirements if the test results satisfy the acceptance criteria as per IS:456.

34 :BRICK BAT WATER PROOFING 34.1 Removal of existing water proofing layer. All existing waterproofing layer will be removed by the contractor, wing wise using chisel and hammer. The hammer will not be used directly on the slab, chisel is to be used only in slanting manner to ensure that the chisel does not enter the slab section. Any damage to the slab will be made good using proper shuttering, steel and concrete mix 1:1.5:3. It shall be allowed to cure for 7 days before further work is undertaken.

34.2. PRE TREATMENT. After the slab top face is exposed the same shall be first broom cleaned and then water cleaned. Immediately on cleaning with water a thin slurry of cement is prepared and broomed over the entire surface and allowed to entire all cruices , cracks etc. which are grooved prior to slurry application . After the slurry coat is completed , and dried for 24 Hrs. The surface is inundated with water for 4 days to check for water tightness . In case any seepage marks appear on the 4 day grooving is repeated before proceeding ahead . Due care is to be taken that all crevices, cracks and unevenness is properly treated.

34.3.WATER PROOF TREATMENT. The grouted surface is cleaned of all excess inundated water and air dried 1 day , cement mortar ( 1: 3 ) with waterproofing chemical added in the ratio of 1 kg for 50kg of cement is prepared and laid evenly over the surface . Thickness of very evenly backed bricks are then hand packed in this wet mortar to create desired slope . The slope that is maintained is 1mm in 120mm ( 1” in 10’ ) . The slope should drain water into the rain water pipe . The top finished level should be at least 1mm below the bottom invert of the rain water pipe . Water is inundated on this brick laid surface for 7 days to check for water tightness and to eliminate weak brick pieces . All weak brick pieces are to be replaced by fully caked pieces . All joints of brick work are then filled with thin coat cement slurry and leveled with cement mortar (1: 3) duly mixed with water proof compound . The cement mortar is to broom finished and inundated with water for 21 days . In case of cement slurry smooth finish with marking as top finished inundation shall be done after top finish coat . China mosaic coat is applied in required design after monsoon and cleaned , finished cured complete .

**[A] CHECK LIST: Details of Enclosures.**

|  |  |  |
| --- | --- | --- |
| Sl.No | Description of item | Enclosed Page. no |
| 1. | Tender Document including Letter of Proforma A |  |
| 2. | Audited Balance Sheet and Profit & Loss statement for the past three financial years duly certified by a Chartered Accountant. |  |
| 3. | Solvency certificate by a Scheduled Bank |  |
| 4. | Certificates / Reports for:  a) Firm / Company registration  b) Completion certificates  c) Performance Reports  d) Solvency Certificate |  |
| 5. | Details of key technical and administrative personnel employed by the firm/ company. |  |
| 6. | Any other important information. |  |
| 7. | Have you enclosed the entire drawings placed in the website |  |

**Date and Place:**

**SIGNATURE OF APPLICANT(S)**

Note: Exceptions of the above, if any, shall be clearly mentioned with details by the tenderer for evaluation/consideration if any.

Seal & Signature of the Tenderer

Even though an applicant may satisfy the above requirements, he would be liable to disqualification if he has:

(a) Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the tender document.

(b) Record of poor performance such as, abandoning work, not properly completing thecontract, or financial failures / weaknesses etc. **DEPUTY ZONAL MANAGER**

**INDIAN BANK**

**Zonal Office Mumbai South**