

Tender Document

PART- I: TECHNICAL BID



CENTRAL BANK OF INDIA
Zonal Office
Central Bank Building
33, Netaji Subhash Road, Kolkata 700 001

**Structural/ Civil Repairing, Renovation & Restoration
work of Central Bank of India Building at 33, NS Road,
Kolkata- 01**

NAME OF CONTRACTOR: _____

ADDRESS OF CONTRACTOR: _____

DATE OF SUBMISSION OF TENDER: _____

Earnest Money: ₹ 2,00,000.00 by Demand/Pay Order/Banker's Cheque

Tender fee : ₹ 5,000/- (Non Refundable)

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1 NOTICE INVITING TENDER**CENTRAL BANK OF INDIA**

Zonal Office
Central Bank's Building
33, Netaji Subhas Road, Kolkata- 700 001

Tender Notice No: **ZO/KOLK/BSD/2021-22** dated **22.12.2021**

Sealed Tenders are invited from limited Contractors qualified in the Technical Bid, vide EOI Notice No: ZO/KOLK/BSD/2021-22 dated 22.12.2021 and to be submitted in a sealed envelope.

1.1 Name of the Work:

Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001.

1.2 Location:

Central Bank of India Building at 33, NS Road, Kolkata- 700 001.

1.3 Estimated Cost:

Approx ₹ **1,50,00,000.00** (Rupees One Crore Fifty Lac only).

1.4 Time of Completion of the project:

14 (Fourteen) months.

1.5 Earnest Money Deposit (EMD):

The tender shall be accompanied by earnest money deposit of ₹ **2,00,000.00** (Rupees Two Lac Only) in the form of Crossed Demand Bank Draft/ Pay order issued in favour of 'CENTRAL BANK OF INDIA' payable at Kolkata to be submitted with Tender Document without which tender will be liable for rejection. Earnest Money Deposit in respect of the successful tenderer will be retained.

1.6 Retention Money:

10% Retention Money will be deducted from the progressive bill of successful bidder.

1.7 Release of Retention Money:

Release of Retention Money after expiry of Defect liability period without any interest.

1.8 Availability of Tender Document:

The Tender (Part-I And Part II Document) would be available from the Bank's website www.centralbankofindia.co.in upto **07.01.2021**

1.9 Date & Place of Submission of Tender:

07.01.2021 upto **3.00 PM** at the office of the Assistant General Manager, Zonal Office, 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700 001.

1.10 Tender should be Addressed to:

The Asst. General Manager
Zonal Office, 6th Floor
Central Bank Building
33, Netaji Subhas Road, Kolkata- 700 001

1.11 Pre-Bid meeting:

Pre-Bid meeting will be held on **10.01.2021** at **3.00 PM** in the Zonal Office, 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700 001. (May be revised as per availability of committee members).

1.12 Opening of Tender:

Tender will be opened on **10.01.2021** at **4.00 PM** at the office of the Assistant General Manager, Zonal Office, 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700 001.

1.13 Mode of Submission of Tender Document:

The tender should be submitted complete with all required documents as prescribed herein in the Tender Box kept at the office of the Assistant General Manager, Zonal Office, 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700 001 in a sealed envelope superscribed with Name of work, Notice Inviting Tender No, Date & time of Submission & Opening, Name & Address of the Bidder comprising of General Conditions of Contract, Technical

Specification, Bill of Quantities duly priced.

1.15 Clarification, if any to be obtained from the office

Project Engineer

Nilesh Haldhar

Sr. Manager- Civil Engineer (9909914091, civilkolkzo@centralbank.co.in).

33- NS Road, Central Bank of India

6th floor, Zonal Office, Kolkata- 01

Envelope-I: Shall contain all the covering letter with the Earnest Money Along with the tender document ,Filled in Form & Performa duly signed.

Envelope- II Shall contains the Price Bid, dully filled in the Provided Price Bid Tender Document.

3 PREREQUISITES

3.1 *Instructions to Bidder:*

- 1 Tender Document should to be downloaded from the Bank's website **www.centralbankofindia.co.in**.
- 2 The completed Tender Document should be submitted in the TENDER BOX kept at the office of the Assistant General Manager, Zonal Office at the address given in the Tender Notice.
- 3 The tender Document should be sealed in an envelope superscripted **PART- II: Financial Bid**.
- 4 The tender Document should be addressed to the **Assistant General Manager, Zonal Office, 6th Floor, Central Bank of India**.
- 5 Transfer of Tender Document downloaded by one intending Bidder to another is not permissible.
- 6 The Bidder's name and address should also be put on the envelope.
- 7 Bidder should ensure that their Tender **Documents** are received before the date and time specified in the NIT.
- 8 The Bidder is required to check the numbers of the pages in the original Tender Document and should any page found missing, he must inform the Bank at once and have the same rectified before submission.
- 9 Should the Bidder be in doubt about the precise meaning of any item or any provision or if he wants any clarification, he must inform the **Bank** before submission.
- 10 In case any discrepancy in interpretation, 'English' language will be preferred.
- 11 No claim shall be allowed in respect of errors in the Bidder's tender due to any mistake in the Tender Document, which should have been put to the notice of the Bank but was not rectified in the manner described above.
- 12 All prospective bidders are advised to refer to the Bank's website for any update / additional information, before submission of their bids.
- 13 Bidder is requested to put his firm's endorsement on each page of the Tender Document as a token of acceptance.
- 14 The Tender Document shall not be witnessed by a Contractor or Contractors who himself / themselves has / have participated for the same work. Failure to observe this condition would render tenders of the Contractors tendering as well as witnessing the tender liable to summary rejection.
- 15 Bidder should fill in all the relevant blanks spaces and put their signature in the relevant places indicated in the document.
- 16 The Form of Tender and Bill of Quantities should be filled as follows:
 - 16.1 In **Form of Tender**, the Bidder should fill up the sum of Total Amount both in figures and words.
 - 16.2 "Total Amount" shall be the sum of the "Amounts" of all sections and should be written in both figures and words.
- 17 The figures or writing have to be distinct, without any overwriting.
- 18 All corrections and overwriting, if any shall be authenticated suitably.
- 19 No alterations or additions are to be made by the Bidder to the texts in the Tender Document. Violation of this instruction will attract rejection of the tender at the discretion of client.
- 20 The unsealed Tender Documents, tenders not superscribed as the prescribed Tender Document, conditional and unsigned tender, tender containing absurd rates and amounts, tender that are incomplete or otherwise considered defective are liable to be rejected.
- 21 The sealed envelopes shall be opened at the specified time in the presence of the Bidder's accredited representatives, if they desire to attend.
- 22 In the event of arithmetical error / errors or discrepancies being discovered in the Bidder's Tender Document the rates mentioned in words in the tender copy marked as Original will be taken as bona-fide. **Rates** in words will be taken in precedence over **rates** in figures.
- 23 Contractors are forewarned that no errors whatsoever arithmetical or otherwise will be permitted in their tenders. Tenders containing many errors are liable to be considered as non-bona-fide at the discretion of the Bank.
- 24 After opening the sealed Tender Document, no unsolicited correspondence / revised offer whatsoever may be in nature, shall be entertained by the Bank.
- 25 Applicants should note that their tenders should remain open for consideration for a minimum period of **90 (Ninety)** days from the date of the opening of tenders.
- 26 The Central Bank of India reserves the right to accept any tender or accept tenders in part or to reject any or all tenders without assigning any reasons thereof and will not be liable to offer any explanation whatsoever.
- 27 Bidder is requested to note that non-compliance of the above instructions is liable to render their Tender non-bona-fide.
- 28 The clause of Notice Inviting Tender prevails over General Conditions and Special Conditions of Tender Document of Part-II.
- 29 The brands / manufacturer's name appearing anywhere in this tender document is for the purpose of reference only.

4 GENERAL RULES AND INSTRUCTIONS

1 Tenders are hereby invited by Central Bank of India, Zonal Office for Civil Repairing Works at Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001. Estimated cost of project is approx ₹ 1,50,00,000.00 (Rupees One Crore Fifty Lac only).

2 Contract documents consisting of the complete specifications, the schedule of quantities of the above work to be done, and set of conditions of contract to be complied with by the person whose tenders may be accepted, which will also be found in the form of tenders, should be downloaded from the Bank's website www.centralbankofindia.co.in.

2 The site for the work will be made available to the contractor in its present conditions. No space other than the above site can be made available to the contractor for site office, labour camps, storage etc.

3 Sealed tenders in the prescribed format are to be addressed & submitted to the Assistant General Manager, Zonal Office, 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700001 upto 3.00 PM on 07.01.2021 in a sealed envelope. The tender should be submitted in a sealed envelope superscribed with Name of work, Notice Inviting Tender No, Date & time of Submission & Opening, Name & Address of the Bidder comprising of General Conditions of Contract, Technical Specification, Bill of Quantities, duly priced. Any condition stipulated in Part-II will not be accepted

The Tender will be opened at about 4 P.M on 10.01.2021 in presence of tenderers. The tenderers shall depute their authorized representative/s to be present at the time of opening of Tender Document. Tender without Earnest Money in proper form will be rejected.

4 Tenders on the prescribed format should be downloaded from the Bank's website www.centralbankofindia.co.in.

5 The time allowed for the carrying out of the work will be 14 months from the fifteenth day after the date of written orders to commence the work, or from the date of handing over the site whichever is later.

6 All corrections shall be attested by the initials of the tenderers with the seal of the firm. In case any discrepancy/ difference is found on checking between rates quoted by the contractor in words and figures or in the amount worked out by him, the following procedure shall be followed:

6.1 When there is a difference between the rates in figures and in words, the rate which corresponds to the amounts worked out by the contractor, shall be taken as correct.

6.2 When the amount of any item is not worked out by the contractor or it does not correspond with the rate written either in word, then the rate quoted by the contractors in word shall be taken as correct.

6.3 When the rate quoted by the contractor in figures and in word tallies but the amount is not worked correctly, rate quoted by the contractor shall be taken as correct and not the amount.

6.4 Amendments as mentioned above shall be based on the tender marked "original" only.

7 When a contractor signs a tender in an Indian language the tendered amount and the total amount tendered should be written in the English language. In the case of illiterate contractors the rates or the amount tendered should be attested by a witness.

8 Earnest Money, amounting to ₹ 2,00,000.00 in a crossed Demand Draft/ Pay order/ Banker's cheque drawn in favour of 'CENTRAL BANK OF INDIA', payable at Kolkata must accompany the tender with Part-II sealed envelope.

9 The contractor, whose tender is accepted will be required to furnish by way of security deposit for the due fulfilment of his contract, such sum as detailed in clause No. 5.12 of General conditions of contract.

The EMD of the contractor, whose tender is accepted, shall be forfeited in full in the case he does not remit the Initial Security Deposit within the stipulated period or do not start the work by the stipulated date mentioned in the award letter / Work Order.

10 The acceptance of a tender will rest with the Central Bank of India, Zonal Office which does not bind itself to accept the lowest tender, and reserves to itself the authority to reject any or all of the tenders received and to place order on one or more firms without the assignment of any reason thereof. All tenders in which, any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

11 Canvassing in connection with tender is strictly prohibited and the tenders submitted by the contractors who resort to such canvassing will be liable for rejection.

12 All rates shall be quoted on the proper form of the tender alone.

13 An item rate, tender containing percentage below/above will be summarily rejected. However, where a tender voluntarily offers a rebate for payment within a stipulated period this may be considered.

14 On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Owner/ Architects shall be communicated to the owner.

15 Special care should be taken to write the rates in figures as well as in words and the amounts in figures only, in such a way that interpolation is not possible. The total amount should be written both in figures and in words. In case of figures, the word "Rs" Should be written before the figure of rupees and word "P" after the decimal figures, say example, Rs 2.00 P and in case of words, the word "Rupees" should be precede and the word "Paisa" should be written at the end, unless the rate is in whole rupees and followed by the words "only" it should invariably be up to two decimal places. While quoting the rate is in schedule quantities. The word "only" should be written closely following the amount and it should not be written in the next line.

16 The Bank does not bind it-self to accept the lowest or any tender and reserves to itself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.

17 All taxes including GST, Work Contract Tax, or any other tax on material or on finished works in respect of this contract shall be payable by the contractor and the Bank will not entertain any claim whatsoever in this respect at any time. Only Service Tax will be paid extra by the bank as per applicable rate of Govt of India rules.

18 The contractor shall give a list of his relatives working with the bank along with their designations and addresses, if

any.

19 No employee of the Bank is allowed to work as a contractor for a period of two years of his retirement from bank service, without the previous permission of the bank. This contract is liable to be cancelled if either the contractor or any of his employees found at any time to be such a person who had not obtained the permission of the Bank as aforesaid before submission of the tender or engagement in the contractor's service.

20 The tender for works shall remain open for acceptance for a period of 120 days (please check if this is correct) from the date of opening of tenders. If any tenderer withdraws his tender before the said period, then the Bank shall be at liberty to forfeit Earnest money paid along with the tender.

21 The tender for the work shall not be witnessed by a contractor or contractors who himself / themselves have / have tendered for the same work. Failure to observe this condition would render tenders of the contractors tendering as well as witnessing the tender liable to summary rejection.

22 It will be obligatory on the part of the tenderer to tender and sign the tender document for all the component parts and that, after the work is awarded, he will have to enter into an agreement for each component with the component authority of the bank.

**The Assistant General Manager
Zonal Office, 6th Floor
Central Bank of India**

5 FORM OF TENDER (TO BE ENCLOSED WITH FINANCIAL BID IN CLOSED ENVELOPE)**The Assistant General Manager****Zonal Office, 6th Floor****Central Bank of India**

Central Bank Building

33, Netaji Subhas Road

Kolkata- 700 001

Sub: Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001

Dear Sir,

Having examined the Specifications, Conditions, Terms, Bill of Quantities relating to the above work and having visited and examined the site of the proposed works and having acquired the requisite information relating thereto as affecting the tender invited by you on behalf of Central Bank of India,

1. I / We refer to the tender notice issued by you for general civil works in connection with the above-mentioned project.
2. I / We hereby offer to perform, provide, execute, complete and maintain the works in conformity with the Conditions of Contract, Specifications, Bill of Quantities for the sum as follows:

SL NO	NAME OF WORKS	SUM OF TOTAL QUOTED AMOUNT IN FIGURE (₹)
1	Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001 <i>- Civil, Sanitary & Plumbing and Electrical Works</i>	

as per item rate basis as quoted by me / us in the Bill of Quantities.

3. I / We affirm that the above quoted rates shall be valid for a minimum period of **120** (one hundred twenty) days from the date of the opening of the Tender Document.

4. I / We have satisfied myself/ourselves as to the site conditions, examined all respects of the tender conditions, subject to above, I / we do hereby agree, should this tender be accepted in whole or in part, to:

- 4.1 abide by and fulfil all the terms and provisions of the said conditions annexed hereto

- 4.2 complete the works within _____ (_____) months

5. I / We have deposited the earnest money of **Rs 2,00,000.00** (Rupees Two Lac only) vide DD No.....datedwhich, I / we note, will not bear any interest and is liable for forfeiture,

- 5.1 if my / our offer is withdrawn within the validity period of acceptance, or

- 5.2 if the contract is not executed within 15 (fifteen) days from the date of receipt of the letter of acceptance, or

- 5.3 if the work is not commenced within 14 (fourteen) days after issue of work order / handing over to site whichever is later.

6. I / We understand that you are not bound to accept the lowest or any tender you receive.

7. In the event of the tender being accepted, I / we further agree to the deduction as Security Deposit on each Running Account (RA) bill as per Clause 5.12 under the head Earnest Money & Security Deposit of General Condition of Contract.

Yours faithfully,

Signature:**Designation:****Address:**

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

1 Name of the Partners / Directors of our Firm / Company

1.1

1.2

1.3

Witness:

6 GENERAL CONDITIONS OF CONTRACT

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, the work shall be carried out as per standard specifications and under the direction of Bank/ Architects

6.1 Interpretation:

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

8. Bank: The term Bank shall denote **Central Bank of India** with their Zonal office at 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700 001 and any of its employees or representative authorised on its behalf.

9. Architects/Consultants: The term Architect shall mean _____, having their registered office at B-70, Narkelbagan, Garia, Kolkata 700084, or in the event of his/ their ceasing to be the Architects for the purpose of this contract such other person/s the Bank shall nominate for the purpose. The Architect with the approval of the Bank may engage a local Architect / Consulting Engineer for supervision and co-ordination of the work at the site. He will be considered a representative of the Architect. The Bank may also engage a Project Management Consultant for the supervision of the work. He will be designated by the term PMC and work as Bank's agent at the site.

10. Contractor: The term Contractor shall mean _____ and his / their heirs, legal representatives, assigns and successors.

11. Site: The Site shall mean the Building located at **Central Bank of India Building at 33, NS Road, Kolkata- 700 001**, where the works are to be executed including any building and erections thereon allotted by the Bank for the contractor's use.

12. Site Engineer: The Site Engineer shall be appointed by the Bank. The Bank may also determine the number of Site Engineers and the supporting staff at site office to assist them and also whether the Site Engineer shall be temporary or permanent. As far as possible, the Site Engineer should assume charge of his post before the contractor reports on site of work. Where more than one Site Engineer is appointed, one of them shall be designated as Senior Site Engineer by the Premises Department and the other Site Engineer shall be reporting to the Senior Site Engineer. Wherever PMC is engaged, Site Engineer, if any, will work in close co-ordination with PMC.

13. The work is to be carried out in accordance specifications, the schedule of quantities or any other instruction, which may be given by the Bank during the execution of the work.

The copy of schedule of quantities is to be kept at site and the Bank/Architects/PMC shall be given access to such schedule of quantities whenever necessary.

In case any detailed Drawings are necessary on contractor's part, contractor shall prepare such detailed drawings and / or dimensional sketches therefor and have it confirmed by the Bank/ Architects/PMC as case may be prior to taking up such work.

The contractor shall ask in writing for all clarifications on matters occurring anywhere in specifications and schedule of quantities or to additional instructions at least 10 days ahead from the time when it is required for implementation so that the Bank may be able to give decision thereon.

14. The term "Works" shall mean the work or works to be executed or done under this Contract.

15. The term "Act of Insolvency" shall mean any act such as defined by the Presidency Towns Insolvency Act or in Provincial Insolvency Act or any amending statutes.

16. The term "Schedule of Quantities" shall mean the schedule of quantities as specified and forming part of this Contract.

17. "Priced Schedule of Quantities" shall mean the schedule of quantities duly priced with the accepted quoted rates of the contractor.

18.

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

6.2 Scope:

1. The work consists of the Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001 in accordance with the "Schedule of Quantities". The civil and sanitary & plumbing work etc, are within the scope of this tender. It includes furnishing all materials, labour, tools and equipment and management necessary for and incidental to the repairing and completion of the work. All work, during its progress and upon completion, shall conform to the lines, elevations and grades as instructed by the Bank/Architects. Should any detail essential for efficient completion of the work be omitted from the specifications it shall be the responsibility of the contractor to inform the Bank/Architects and to furnish and install such detail with Bank's / Architect's concurrence, so that upon completion of the proposed work the same will be acceptable and ready for use.
2. Bank or his agent PMC/Architects may in their absolute discretion issue further written instructions, details, directions and explanations, which are, hereafter collectively referred to as "The Bank's / Architect's instructions" in regard to:
 - a) The variation or modification of the design quality or quantity of works or the addition or omission or substitution of any work.
 - b) Any discrepancy in between the Schedule of Quantities and / or Specifications.
 - c) The removal from the site of any defective material brought **thereon** by the Contractor and the substitution of any other material thereof.
 - d) The demolition, removal and / or re-execution of any work executed by the Contractor/s.
 - e) The dismissal / **replacement** from the work of any persons employed there upon.
 - f) The opening up for inspection of any work covered up.
 - g) The rectification and making good of any defects under clauses hereinafter mentioned and those arising during the maintenance period (retention period).
3. The contractor shall forthwith comply with and duly execute any work comprised in such Bank's or his agent/Architect's instructions, provided always that verbal instructions, directions and explanations given to the contractor's or his representative upon the works by the Bank or his agent/Architects shall, if involving a variation, be confirmed in writing to the contractor/s within seven days. No works for which rates are not specifically mentioned in the priced schedule of quantities, shall be taken up without written permission of the Bank or his agent / Architects. Rates of items not mentioned in the priced schedule of quantities shall be fixed by the Bank in consultation with the Architects as provided in Clause "variation".
4. The contractor shall set up a field laboratory with necessary equipment's for day to day testing of materials like grading of coarse and fine aggregates, silt content and bulk age of sand, etc
5. Regarding all factory made products for which ISI marked products are available, only products bearing ISI marking shall be used in the work.

6.3 **Tenderer Shall Visit The Site:**

1. Intending tenderer shall visit the site and make himself thoroughly acquainted with the local site condition, nature and requirements of the works, facilities of transport condition, effective labour and materials, access and storage for materials and removal of rubbish. The tenderer shall provide in their tender for cost of carriage, freight and other charges as also for any special difficulties and including police restriction for transport etc for proper execution of work as indicated in the drawings. The successful tenderer will not be entitled on to any claim of compensation for difficulties faced or losses incurred on account of any site condition which existed before the commencement of the work or which in the opinion of the Bank or his agent/Architects might deemed to have reasonably been inferred to be so existing before commencement of work.

6.4 **Tenders:**

1 The entire set of tender paper issued to the tenderer should be submitted fully priced and also signed on the last page together with initials on every page. Initial / signature will indicate the acceptance of the tender papers by the tenderer.

2 The schedule of quantities shall be filled in as follows:

2.1 The 'Rate' column to be legibly filled in ink in both English figures and English words.

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

2.3 All corrections are to be initialled.

2.4 The "Rate column" for alternative items shall be filled up.

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

2.6 In case of any errors/omissions in the quote rates, the rates given in the tender marked "Original" shall be taken as correct rates.

3 No modifications, writing 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.

4 The Bank reserves the right to reject the lowest or any tender and also to discharge any or all 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.

5 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 Bank /Architects detailed analysis of any or shall the rates shall be submitted. Bank/Architects shall not be bound to recognize the contractor's analysis.

6 The work will be paid for as "measured work" on the basis of actual work done and not as "lumpsum" contract, unless otherwise specified.

7 All items of work described in the schedule of quantities are to be deemed and paid as complete works in all respect and details including preparatory and finishing work involved, directly, related to personable detectable from the 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 Bank/Architects.

8 The 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 contractor without authorization from the Bank. No variation shall vitiate the contract.

9 The tenderer shall note that his tender shall remain open for consideration for a period of 120 days from the date of opening of the tender.

6.5 **Agreement:**

1. The successful contractor is required to sign an agreement which may be drawn up to suit local conditions and shall pay for the required stamps and legal expenses, incidental thereto

6.6 **Permits And Licenses:**

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

2. It may be clearly understood that no compensation or additional charges can be 'claimed by the contractor for non-receipt of the cement or any controlled materials in due time on this account or according to his own requirements.

3. The contractor will, however, be eligible to a proportionate extension of time on this account which in the opinion of the Bank/ Architects is reasonable. The contractor shall at his own cost arrange for storage shed adequate for taking delivery and storing of the quantity of controlled materials released by the authorities or supplied by the Bank. The costs of storing, transporting etc., of all materials including those under Government control are to be included by the tenderer in his quoted rates.

4. The Bank / Architect / PMC shall be indemnified against all Government or any legal actions for theft or misuse of cement MS rods and any other controlled materials in the custody of the contractor.

6.7 **Government And Local Rules:**

1. The contractor 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 contractor shall give all notices required by said Act, Rules, Regulations and Bye-laws etc and pay all fees payable to such authority/authorities for execution of the work involved. The cost, if any, shall be deemed to have been include in his quoted rates, taking into account all liabilities for licences, fees for footpath encroachment and restorations etc and shall indemnify the Bank against such liabilities and shall defend all actions arising from such claims or liabilities.

6.8 Taxes & Duties:

1. The tenderers must include in their tender prices quoted for all duties, royalties, Cess & Sale Tax or any other taxes or local charges. No extra claim on this account will in any case be entertained. Only Service Tax will be paid extra by the bank as per applicable rate of Govt of India rules.

6.9 Detailed Instructions:

1 The Bank through its Architects shall furnish with reasonable promptness additional instructions by means of drawings or otherwise necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonably infer-able there from.

2 The work shall be executed in conformity therewith and the contractor shall not work without proper drawings and instructions. Immediately after receipt of the work order of the contract the contractor shall prepare a progress schedule and submit the same to the Bank through the Architects for approval which shall indicates the dates for the starting and completion of the various stages of constructions.

6.10 Quantity Of Work To Be Executed:

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

6.11 Other Person Engaged By The Bank:

1. The Bank reserves the right to execute any part of the work included in this contract to any other Agency or person and contractor shall allow all reasonable facilities and use of his scaffolding for the execution of such work. The main contractor shall extend full co-operation in this regard.

6.12 Earnest Money:

1 The tenderer will have to deposit an amount of ₹ 2,00,000.00 in the form of Bank Draft drawn in favour of 'CENTRAL BANK OF INDIA' at the time of submission of tender as an Earnest Money. The 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 decision to award the work is taken or after the expiry of the validity period of the tender.

2 Apart from the Earnest money deposit made as above, retention money shall be deducted from progressive running bills @ 10% of the gross value of each running bill

3 The retention amount will be refunded to the contractor 14 (fourteen) days after the end of defects liability period provided he has satisfactorily carried out all the work and attended /removed all defects in accordance with the conditions of the contract. No interest is allowed on the retention money.

6.13 Performance Bank guarantee for Roof Treatment Works:

1. Performance Bank Guarantee of amount 10% (Ten percent) of the value of Roof treatment works will be taken on completion of Defect Liability period including claim period of 3 months for a further period of 04 (Four) years.

2. The Security Deposit will be released after Defect Liability period, if no defect found, subject to submission of Performance Bank Guarantee.

3. Performance Security Deposit will be accepted if it is issued from any Scheduled Commercial Bank, banking in India, other than Central Bank of India or its subsidiaries as per format given in annexure.

6.14 Contractor To Provide Everything Necessary:

1. The contractor 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 contractor finds any discrepancies therein he shall immediately and in writing, refer the same to the Bank/ Architects/ PMC whose decision shall be final and binding. The contractor shall provide himself for ground and fresh water for carrying out of the work at his own cost. The Bank shall on no account be responsible for the expenses incurred by the contractor for hired ground or fresh water obtained from elsewhere.

2. 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 document. Only Service Tax will be paid extra by the bank as per applicable rate of Govt of India rules.

3. The contractor shall supply, fix and maintain at his own cost, for the execution of any work, all tools tackles, machineries and equipment's and all the necessary cantering scaffolding, staging, planking, timbering, strutting, showing, 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 of the public and safety of any adjacent roads, streets, walls, house,

buildings, 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 works to the satisfaction of the Bank/Architects.

4. The contractor 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 Bank shall otherwise direct.

5. The contractor shall at all times give access to workers employed by the Bank or any men employed on the building 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 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.

6.15 Time Of Completion Extension Of Time & Progress Chart:

1. **Time of completion:** The entire work is to be completed in all respects within the stipulated period. The work shall deemed to be commenced within 14 (fourteen days) from the date of acceptance letter or date of handing over of site, whichever is later. Time is the essence of the contract and shall be strictly observed by the contractor. The work shall not be considered as complete until the Bank/Architects have certified in writing that this has been completed and the Defects Liability Period shall commence from the date of such certificate.

2. **Extension of Time:** If in the opinion of the Bank/Architects the works be delayed (a) by reason of any exceptionally inclement weather, or (b) by reason of instructions from the Bank in consequence of proceedings taken or threatened by or disputes, with adjoining or neighbouring Banks or (c) by the works, or delay of other contractors or tradesmen engaged or nominated by the 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 workmen or strikes or lock-out affecting any of the building or trades or (f) from other causes which the Bank may consider are beyond the control of the contractor, the Bank at the completion of the time allowed for the contract shall make fair and reasonable extension of time for completion in the respect therefore. In the event of the 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 contractor shall, immediately give the Bank, written notice thereof. Nevertheless, the contractor shall use his best endeavours to prevent delay and shall do all that may be reasonably required, to the satisfaction of the Bank to proceed with the works and on his doing so that it will be ground of consideration by the Bank for an extension of time as above provided. The decision of the Bank and to the period to be allowed for an extension of time for completion hereunder (which decision shall be final and binding on the contractor) shall be promulgated at the conclusion of such strike or lock-out and the Bank shall then, in the event of an extension being granted, determine and declare the final completion date. The provision in clause 61 with respect to payment of liquidated damages shall, in such case, be read and construed as if the extended date fixed by the Bank where substituted for and the damage shall be deducted accordingly.

3. **Progress of work:** During the period of construction the contractor shall maintain proportionate progress on the basis of a programme chart submitted by the contractor immediately before commencement of work and agreed to by the Bank/Architects. Contractor 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.

6.16 Liquidated Damages:

1. Should the work be not completed to the satisfaction of the Bank/Architects within the stipulated period, the contractor shall be bound to pay to the Bank a sum calculated as given below by way of liquidated damages and not as penalty during which the work remains non-commenced or unfinished after the expiry of the completion date.

1.1 For contracts having time for completion exceeding 6 months but not exceeding 2 years (24 months): 0.50% of the estimated amount shown in the tender per week subject to a ceiling of 7.5% of the accepted contracted sum but not exceeding the total SD of the contract.

6.17 Tools, Storage Of Materials, Protective Works And Site Office Requirements:

1. The contractor shall provide, fix up and maintain in an approved position proper office accommodation for the contractor's representative and staff which offices shall be open at all reasonable hours to receive instruction notices or communications and clear away on completion of the work and make good all work disturbed.

2. 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.

3. The contractor shall provide at his own cost all artificial light required for the work and to enable other contractor and sub-contractors to complete the work within the specified time.

4. The contractor shall provide a suitable temporary hut for the watchmen and clear away the same when no longer required and to provide all necessary attendance, lights etc required.

5. The contractor shall arrange for temporary latrines for the use of workers and field staff and keep the same in a clean and sanitary condition to the satisfaction of the 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 convenience.

6. Every precaution shall be taken by the contractor to prevent the breeding of mosquitoes on the work during the construction, and all receptacles, cistern, water tanks etc used for the storage of water must be suitably protected against breeding of mosquitoes. The contractor shall indemnify the Bank against any breach of rules in respect of anti-malarial measures.

7. The contractor shall not fix or place any placards or advertisement of any description or permit the same to be fixed or placed or upon any boarding gantry, building structure other than those approved by the Bank.
8. Protective Measures:
 - a) The contractor from time to 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.
 - b) Contractor shall indemnify the Bank against any possible damage to the building, roads, or members of the public in course of execution of the work.
 - c) The contractor 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.
9. Storage of Materials:
 - a) The contractor shall provide and maintain proper sheds for the proper storage and adequate protection of materials etc and other work that may be executed on the site including the tools and materials of nominated sub-contractors and remove same on completion.
 - b) Cement godown shall be constructed for storing about six weeks' requirement of cement and stored as per norms with a stack of 10 bags each and 2 feet opening around with 2 feet passage of each stack. Structure shall be water-proof from all the sides and top. Cement should be stored one foot above the ground level and have pucca raised floor.
 - c) So also reinforcement bars are to be stored above the ground level to prevent the same from getting rusted.
10. Tools:
 - a) Theodolite, levels, prismatic compass, chain, steel and metallic tapes and all other surveying instruments found necessary on the works shall be provided by the contractor for the due performance of this contract as instructed by the site Engineer.
 - b) All measuring tapes shall be of steel and suitable scaffolding and ladders that may be required for safely taking measurement and shall be supplied by the contractor.
 - c) The mistries and the supervisors on the works shall carry with them always a one metre or two metre steel tape, a measuring tape of 30 metres, 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 contractors as he chooses for checking the works executed or being executed on the contract.
 - d) The contractor should over in his rates for making provisions for all reasonable facilities for the use of his scaffolding, tools and plant etc by nominated sub-contractors for their work.

6.18 Notice And Patents Of Appropriate Authority And Bank:

1. The contractor shall conform 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 system the structures were proposed to have connection and shall before making any variation from the drawings or specification that may be associated to so conform, give the Bank/Architects written notices specifying the variations proposed to be made and the reason for making them and apply for instruction thereon. The Bank/Architects on receipt of such intimation, shall give a decision within a reasonable time.
2. The contractor/s shall arrange to give all notices required for by the said Acts, Regulations or Bye-laws to 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 Bank.
3. The contractor shall indemnify the Bank against all claims in respect of patent rights, royalties, 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 Bank saved harmless and indemnified all respects from such actions, costs and expenses.

6.19 Clearing Site And Setting Out Works:

1. 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.
2. The contractor 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 irrespective of the fact that the layout had been approved by the Bank /Architects, the contractor shall at his own expenses rectify such error, if called upon to the satisfaction of the Bank. The contractor 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.

6.20 Datum

1. The average ground level will be considered as the crown of the nearest road, which should be taken as "Datum" which is however, subject to. final confirmation by the Bank/ Architects. All levels shown in the drawings are to be strictly adhered to.

6.21 Benches

1. The contractor is to construct and maintain proper benches of all the main walls, in order that the lines and levels

may be accurately checked at all times

2. These benches will consist of salwood post of adequate length and minimum diameter 75 mm to be driven in the ground at suitable distance as directed encased with brickwork. The wire nails will be driven on the top of salwood post on the centre lines of columns, walls, inside and outside faces of foundation trenches, in order that lines may be stretched between the benches and accurate intersection of excavation. Centre line of walls, columns etc, may be clearly indicated and checked at any time if it is so required.

6.22 Contractor Immediately To Remove All Offensive Matters:

1. All soil, filth or other matters of any offensive nature taken out of any trench, sewer, drain, cesspool or other place shall not be deposited on the surface but shall be at once carted away by the contractor to place provided by him.
2. The contractor shall keep the foundations and work free from water and shall provide and maintain at his own expenses electrically or other power driven pumps and other plants to the satisfaction of the Bank for the purpose, until the building is handed over to the Bank. The contractor shall arrange for the disposal of the water so accumulated to the satisfaction of the Bank and local authority and no claims will be entertained afterwards if he does not include in his rates for the purpose.

6.23 Access:

1. Any authorized representative of the Bank shall at all reasonable times have free access to the work 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 contractor shall give every facility to the Bank or their representative necessary for inspection and examination and test of the materials & workmanship. Except the representative of the Bank no person shall be allowed at any time without the written permission of the Bank.
2. Bank's Lifts will be not allowed for lifting of Civil/ plumbing sanitary material and other equipments.

6.24 Materials, Workmanship, Samples, Testing Of Materials:

1. 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 workman like 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 Bank /Architects during the execution of the work, and to his entire satisfactions.
2. If required by the Bank/Architects the contractor shall have to carry out tests on materials and workmanship in approved materials testing laboratories or as prescribed by the Bank/Architects at his own cost to prove that the materials etc , under test conform to the relevant ISI. standers 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 contractor. No extra payment on this account should in any case be entertained.
3. 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, dales tax, octroi and other charges and must be the best of their kind available and the contractor/s must be entirely responsible for the proper add efficient carrying out of the work. The work must be done in the best working manner. Samples of all material to be used must be submitted written approval from Bank/ Architects must be obtained prior to placement of order.
4. During the inclement weather the contractor shall suspend concreting and plastering for such time as the Bank/ Architects 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 reason due to rain, storm, or neglect of contractor shall be rectified by the contractor in an approved manner at no extra cost.
5. Should the work be suspended by reason of rain, strike, lock-outs or any other cause, the contractor shall taken all precautions necessary for the protection of work and at his own expenses shall make good any damage arising from any of these causes.
6. The contractor 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 nominated sub-contractor and any damage caused must be made good by the contractor at his own expenses.

6.25 Removal Of Improper Work:

1. The 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 time as may be specified in the order of any materials which in the opinion of the Bank architects 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 contractor refuses to comply with the order the 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 Bank/Architects shall be borne by the contractor or may be deducted from any money due to or that may become due to the contractor. No certificate which may be given by the Architects shall relieve the contractor from his liability in respect of unsound work or bad materials.

6.26 Site Engineer/ PMC:

1. The term "Site engineer/ PMC" shall mean the person/ agency appointed and paid by the Bank to superintend the work. The contractor shall afford the Site Engineer/ PMC every facility and assistance for examining the works and materials

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

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 contractor or to sanction any day work, except in so far as such authority may be specially conferred by a written order of the Bank.

2. The Site Engineer/ PMC shall have power to give notice to the contractor or his foreman, of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discounted until the decision of the Bank is obtained. The work will from time to time be examined by the Architects, Engineer from the premises department of the Bank and the site engineer. But such examination shall not in any way exonerate the contractor 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 contractor shall take instructions only from the Architects /Bank or his representative.

6.27 Office Accommodation For The Site Engineer/ PMC:

1. The contractor shall provide, erect, and maintain at his cost a separate simple watertight office accommodation for the Site Engineer/ PMC. This accommodation shall be well lighted and ventilated and provided with windows, door with a lock. The Site Engineer's / PMC's office shall be a minimum of 150sq.ft and the contractor shall provide a desk, chairs, drawers for keeping drawings, a cupboard having proper lock, telephone connection, electric fare and a tack board for displaying drawings electricity charges for light fan etc and telephone bills will be borne by the contractor. The accommodation shall be demolished when directed.

6.28 Contractor's Employees:

1 The contractor 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 Bank /Architects. The contractor shall engage at least one experienced Engineer as Site In-charge for execution of the work. The contractor shall employ in connection with the work persons having the appropriate skill or ability to perform their job efficiently.

2 The contractor shall employ local laborers on the work as far as possible.

3 No laborer below the age of sixteen years and who is not an Indian National shall be employed on the work.

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

5 The contractor shall comply with the provision of all labour legislation including the requirements of:

5.1 The payment of wages act

5.2 Employer's liability act

5.3 Workmen's compensation act

5.4 Contract labour (regulation & abolition) act, 1970 and Central Rules 1971. **Copy of licence obtained from the competent authority is required to be submitted to the Bank.**

5.5 Apprentices act 1961.

5.6 Any other Act or enactment relating there to and rules framed thereunder from time to time.

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

7 The contractor 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 Bank regarding the maintenance of proper environmental sanitation of the area where the contractor's labourers are housed or accommodated for the prevention of small pox, cholera, plague, typhoid, malaria and other contagious diseases. The contractor shall provide, maintain and keep in good sanitary condition adequate sanitary accommodation and provide facilities for pure drinking water at all time 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 contractor to prevent nuisance of any kind on the works or the lands adjoining the same.

8 The contractor shall arrange to provide first-aid treatment to the labourers 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 authority where such report is required by law.

6.29 Dismissal Of Workmen:

1. The contractor shall on the request of the Bank immediately dismiss **/ replace** from works any person employed thereon by him who may in the opinion of the Bank be unsuitable or incompetent or who may misconduct himself. Such discharges shall not be the basis of any claim for compensation or damages against the Bank or any of their officer or employee.

6.30 Assignment:

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

6.31 Damage To Persons And Property Insurance etc.:

1. The contractor shall be responsible for all **/ any** 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 any sub-contractor or of any of his or a sub-contractor'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 damages 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 to this contract by rain, wind or other inclemency of the weather. The contractor shall indemnify the 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 **any** injury or damage under any acts of compensation or damages consequent upon such claim.

2. The contractor 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 make good or otherwise satisfy all claims for damages to the property or third parties.

3. The contractor shall effect the insurance necessary and indemnify the Bank entirely from all responsibility in this respect. The insurance must be placed with a company approved by the Bank and must be effected jointly in the name of the contractor and the Bank and the policy lodged with the latter. The scope of insurance is to include damage or loss to the contract itself till this is made over in a complete state. Insurance is compulsory and must be effected for the every initial stage. The contractor shall also be responsible for **anything** which may be or defective **in** carrying out of this contract.

4. The 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 and payable** to the contractor.

6.32 Insurance:

1. Unless otherwise instructed the contractor shall insure the work 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 Bank, in the joint names of the Bank and the contractor for such amount and for any further sum if called to do so by the Bank, the premium of sum being allowed to the contractor as an authorized extra.

2. The contractor shall deposit the policy **document** and receipt **of** premiums paid with the Bank within 21 (twenty one) days from the date of issue of work order unless otherwise instructed. In default of the contractor insuring as provided above, the Bank on his behalf may so insure and may deduct the premiums paid from any money due, or which may become due **and payable** to the contractor. The contractor 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 through the fire has not occurred and in all respects under the conditions of the contract. The contractor in case of rebinding or reinstatement after fire shall be entitled to extension of time for completion as the Bank may deem fit.

6.33 Accounts Receipts & Vouchers

1. The contractor shall, upon the request of the 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 contractor 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 Bank shall be final and binding on the contractor as to the amount of materials the contractor is required to use for any work under this contract.

6.34 Measurement Of Works:

1. Before taking any measurement of any work the Site Engineer or a subordinate deputed by him shall give reasonable notice to the contractor. If the contractor fails to attend at the measurements after such notice or fails to countersign or to record the difference within a week from the date of measurement in the manner required by the Site Engineer then in any such event the measurements taken by the Site Engineer or by the subordinate deputed by him as the case may be is final and binding on the contractor and the contractor shall have no right to dispute the same.

6.35 Payments

1. All bills shall be prepared by the contractor in the form prescribed by the Bank/Architects. 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.

2. The Bank/Architect shall issue a certificate after due scrutiny of the contractors' bill stating the amount due to the contractor from the Bank and the contractor 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 adhoc advance of 75% of the billed amount may be paid on the request of the contractor for the smooth progress of the work.

3. The amount stated in an interim certificate shall be the total value of work properly executed and 75% of invoiced value of imperishable 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 Bank as retention money vide clause 5.12 of these conditions 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 casualties.

4. The Bank will deduct retention money as described in clause 5.12 of these conditions. The refund of retention money will be made as specified in the said clause.

5. If the Bank has supplied any materials or goods to the contractor, the cost of any such materials or goods will be progressively deducted as per market rate from the amount due to the contractor in accordance with the quantities consumed in the work.

6. 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 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 contractor 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 within three months.

7. Final Payment:

a) The final bill shall be accompanied by a certificate of completion from the Bank/ Architects. Payments of final bill shall be made after deduction of Retention Money as specified in Clause 5.12 of these conditions, which sum shall be refunded after the completion of the Defects Liability period after receiving the Bank's/Architect's certificate that the contractor has rectified all defects to the satisfaction of the Bank/Architects. The acceptance of payment of the final bill by the contractor would indicate that he will have no further claim in respect of the work executed.

6.36 Variation / Deviation

1. The price of all such additional items/ non-tendered items will be worked out on the basis of rates quoted for similar items in the contract wherever existing or on engineering rate analysis based on prevalent fair price of labour, material and other components as required. The tender rates, shall hold good for any increase or decrease in the tendered quantities upto variation of 25%. For variation beyond 25%, the rate for the respective item may be reviewed on mutually agreed terms.

6.37 Substitution:

1. Should the contractor desire to substitute any materials and workmanship, he/they must obtain the approval of the Bank/Architects in writing for any such substitution well in advance. Materials designated in this specifications indefinitely by such term as "Equal" or "other approved" etc. specific approval of the Bank/Architects has been obtained in writing.

6.38 Preparation Of Building Works For Occupation And Use On Completion:

1. The whole of the work will be thoroughly inspected by the contractor and deficiencies and defects put right. On completion of such inspection the contractor shall inform the Bank that he has completed the work and it is ready for inspection.

2. On completion the contractor shall clean all windows and doors including the cleaning and oiling if necessary, of all hardware, inside and outside, all floors, staircases, 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 Bank.

6.39 Clearing Site On Completion:

1. On completion of the works the contractor 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 workmanlike condition to the satisfaction of the Bank/Architects.

6.40 Defects After Completion:

1. The contractor shall make good at his own cost and to the satisfaction of the Bank all defects, shrinkage, settlements or other faults which may appear within 12 months after completion of the work. In default the 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 contractor and such damages, loss and expenses shall be recoverable from him by the Bank or may be deducted by the Bank, in lieu of such amending and making good by the contractor; deduct from any money due to the contractor a sum equivalent to the cost of amending such work and in event of the amount retained being insufficient, recover that balance from the contractor from the amount retained under Clause 5.12 together with any expenses the Bank may have incurred in connection therewith.

6.41 Concealed Work:

1. The contractor shall give due notice to the Bank wherever any work is to be buried in the earth concrete 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 Bank's either opened up for measurement at

the contractor's expenses or no payment may be made for such materials, should any dispute or difference 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 Bank shall be accepted as correct and binding on the contractor.

6.42 Escalation:

1. 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, sale tax, etc.

6.43 Idle Labour:

1. Whatever the reason 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.

6.44 Suspension:

1. If the contractor except on account of any legal restraint upon the Bank preventing the continuance of the work or in the opinion of the 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 Bank shall have the power to give notice in writing to the contractor requiring the work be proceeded within a reasonable manner and with reasonable dispatch, such notice purport to be a notice under this clause.

2. After such notice shall have been given the contractor 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 date of such notice being given until the notice shall have been complied with. If the contractor fail to start the work within 7 (seven) days after such notice has been given to proceed with the work as therein prescribed, the Bank may proceed as provided in Clause 2.43 (Termination of Contract by Bank).

6.45 Termination Of Contract By Bank:

1. If the contractor being a company go into liquidation whether voluntary or compulsory or being an individual shall be adjusted insolvent or shall make an assignment or a composition for the benefit of the greater part, in number of amount of his creditors or shall enter into a Deed or agreement with his creditors, or if the official Assignee in insolvency, or the Receiver of the contractor in insolvency, shall repudiate the contract, or if a Receiver of the contractor'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 Bank that he is able to carry out and fulfil the contract, and if so required by the Bank to give reasonable security therefore, or if the contractor 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 contractor, or shall assign, charge or encumber this contract or any payments due or which may become due to the contractor, 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 contractor within three clear days after the notice shall have been given to the contractor in manner hereinafter mentioned enquiring the contractor 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 Bank not exercise such 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 Bank after three **days clear notice** requiring the contractor so to do shall have been given to the contractor as hereinafter mentioned, shall abandon the contract, then and in any of the side cases, the Bank may notwithstanding previous waiver determine the contract by a notice in writing to the effect as hereinafter mentioned, but without thereby affecting the powers of the Bank of the obligations and liabilities of the contractor the whole of 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 contractor (without thereby creating any trust in **favour** of the contractor) further the Bank or his agent, or servants, may enter upon and take dissensions of the work and all plants, tools, scaffoldings, sheds, machinery, steam and other power, utensils and materials lying upon premises or 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, and the contractor shall not in any way interrupt or do any act, matter or things to prevent or hinder such other contractors 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 Bank shall give notice in writing to the contractor to remove his surplus materials and plants and should the contractor fail to do so within a period of 14 days after receipt by him the Bank may sell the same by public Auction and shall give credit to the contractor for the amount so realized. Any expenses or losses incurred by the Bank in getting the works carried out by other contractors shall be adjusted against the amount payable to the contractor by way of selling his tools and plants or due on account of work carried out by the contractor prior to engaging other contractors or against the security deposit.

6.46 Arbitration:

1. All disputes or difference of any kind whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the executions 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 the rights or liabilities of the parties or arising out of or in relation thereto whether during or after determination foreclosure or branch 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 Bank hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as hereinafter provided.

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

3. The contractor shall on receipt of the names as aforesaid, select any one of the persons name to be appointed as a sole Arbitrator and communicate is name to the Bank within thirty days of receipt of the names. The Bank shall thereupon without any delay appoint the said person as the sole Arbitration. If the contractor fail 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.

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

5. 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.

6. The work under the contract shall however, continue during the arbitration proceeding and no payment due to payable to the contractor shall be withheld on account of such proceeding.

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

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

9. The Arbitrator shall give a separate award in respect of each dispute or deference 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 such place as may be fixed by the Arbitrator in his sole discretion.

10. 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.

11. The award of the Arbitrator shall be final and binding on the both parties.

12. Subject to aforesaid the provisions of the Arbitrator Act. 1992 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.

13. The Bank and the contractor 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.

6.47 Declaration:

I/we have inspected the site of work and have made me/us fully acquainted with the local conditions in and around the sites of works. I/we hereby declare that I/we have gone through the conditions laid down in the Notice Inviting Tender, General Conditions of Contract, Technical Specifications and understood the same and on the basis of the same I /we quoted our rates in the schedule of quantities attached with the tender documents.

5.48 Water and Electricity shall not be provided by Bank. Bank's Lift will be not allowed for lifting of materials.

I /we shall also uniformly maintain such progress with the work, as may be directed by the Bank/Architects to ensure completion of same within the target date as mentioned in the tender document.

Signature of Tenderer:

Designation:

Address:

Witness:

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

7 APPENDIX TO GENERAL CONDITIONS OF CONTRACT

(a)	(b)	(c)
1	Defect Liability Period	14 (fourteen Months)
2	Date of Commencement	14 days from the date of issue of work order or the date on which the contractor is instructed to take possession of the site, whichever is later
3	Period of Completion	14 (fourteen) months from the date of commencement
4	Liquidated Damages	As per Clause 5.16
5	Value of works for interim certificate	Rs 25.0 Lac
6	Earnest Money	Rs 2,00,000.00 by Demand/Pay Order/Banker's Cheque
8	Release of Earnest Money Deposit and Retention Money	After Successful completion of defect liability period and issuance of work completion certificate, without any interest
9	Performance Bank Guarantee for Roof Treatment Works	10% (Ten percent) of value of Roof Treatment works to be submitted on completion of Defect Liability period including claim period of 3 months for a further period of 02 (Two) Years

8 SPECIAL CONDITIONS OF CONTRACT**8.1 General:**

3 The Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, Schedule of Specifications and any other documents forming part of this Contract wherever the context so requires.

4 Notwithstanding, the sub-division of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the Contract so far as it may be practicable to do so.

5 Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, then unless a different intention appears, the provisions of the Special Conditions of Contract, shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnance, or variance, prevail.

8.2 Whole Work to be completed in the specified Completion Period:

6 The whole work including all extra and additional items is to be completed in the completion period stated in Appendix to General Conditions of Contract and the Contractor will be required, if necessary to work overtime to fulfil the instruction to complete the work by the Contract date.

7 No extra will be allowed on the Contract Value for such overtime work.

8.3 Interpretation of Terms:

8 Whenever the words "directed", "as required", "selected" or words like this effect are used, it is to be understood that the selection, direction or requirement of the Architect are intended.

9 The words "approved", "satisfactory" or words like this effect shall mean "approved by" or "satisfactory to" the Bank, whose approval must first be obtained before the materials ordered or the works to which the words refer to are put in hand.

10 The word "allow" shall mean that the Contractor shall include in his rates for the particular matter referred to.

11 The words "as described" shall mean the description in the trade preambles, general preambles, specifications, general instructions etc.

8.4 Order of Work:

12 The Engineer reserves the right to fix the order in which the various items of work involved in this Contract are to be executed and the Contractor shall comply with the same.

13 There shall be no extra claims on account of this.

8.5 Samples:

14 Before ordering such materials, the Contractor shall get samples of the materials approved from the Bank / Architect well in time.

15 The Contractor shall furnish well in time before work commences, at his own cost, any samples of materials or workmanship that may be called for by the Bank / Architect for his approval or rejection and any further samples in case of rejection until such samples are approved.

16 Such samples when approved shall be the minimum standard for the work to which they apply.

17 Rates quoted by the Contractor shall cover for such preliminary works.

8.6 Workmanship:

18 The work involved calls for a high standard for workmanship combined with speed.

8.7 Rejected Materials or Workmanship:

19 Any workmanship or materials not complying with the specific requirements or approved samples or which have been damaged, contaminated or deteriorated, must be removed immediately from the site and replaced at the Contractor's expense, as directed.

8.8 Discrepancies:

20 The several documents forming the Contract are to be taken mutually explanatory of one another.

21 In the event of any errors, omissions and discrepancies, those shall be dealt as:

21.1 in case of discrepancy between the Bill of Quantities and / or the Specifications, the following order of preference be observed:

21.1.1 description in Bill of Quantities

21.1.2 particular Specifications and special condition, if any

21.1.3 Indian Standard Specifications of Bureau of Indian Standards

21.2 in case of difference between the rates written in figures and the rate in words shall prevail,

21.3 the original Tender Document shall be taken as authenticated,

21.4 in case of omissions and / or doubts or discrepancies in any of the items or Specifications, a reference shall be made to the Architect whose elucidation, elaboration or decisions approved by the Bank shall be considered as authentic.

22 The Contractor shall be held responsible for any error that may occur in the work through lack of such reference and precaution.

8.9 Quoted Rates:

23 The rates quoted by the Contractor shall be held to include for providing and fixing all scaffolding, conveyance and delivery, unloading, carriage for storing, hoisting, all labour, setting, fitting and fixing in position making, setting, cutting, wastage, return of packing and all materials and labour and everything else necessary for the proper completion of each item of work to the approval of the Bank / Architect and for establishment charges, overheads and profits.

24 The Contractor shall provide at his expense all labour, materials and things required by the Architect or his representative for testing and measuring the work, for weighing, testing the efficiency of any portion of the work, all planning gangways etc., necessary for affording access to every part of the work.

25 The Contractor should note that unless otherwise stated the tender is strictly on item rate basis and his attention is drawn to the fact that rates for each and every item should be correct, workable and self supporting.

26 The quantities in the Bill of Quantities approximately indicate the total extent of work but may vary to any extent and may even be omitted.

27 If called upon by the Architect, detailed analysis of any or of all the rates shall be submitted by the Contractor and the Architect is not bound to recognise the Contractor's analysis and reserves the right to reject abnormal high rates quoted by the Contractor.

28 In case there are inconsistencies in the rates for items of same such rates shall be considered as the rate for all such items unless the Architect finds that there is justification for such inconsistent rates. No

claim shall be entertained on this account.

8.10 Site Conditions:

29 No housing accommodation is available at site of work and the Contractor should make his own arrangements for the same outside.

30 The Contractor should comply to the terms and conditions for execution of work imposed by the local municipality / corporation / statutory authorities / associations and should make themselves aware of them before filling in the Tender Document.

31 Since the site is located within a predominantly residential / educational / commercial area, utmost care shall be taken so that the occupants are not disturbed in any manner at any time.

32 The Contractor is not to stack any of his material recklessly so as to endanger the safety of the building and cause any nuisance to the occupants and the public.

33 The rubbish produced during execution should be removed from time to time and shall not be kept lying at / around the site.

34 The Contractor will not be allowed to use the elevator in the building for carriage of materials or labourers.

35 The Contractor must ensure that no dust pollution occurs during execution of work.

36 The Contractor should work in tandem with other contractors / agencies employed by the Bank for activities beyond their scope so as to complete the work as per approved time schedule.

37 Any damage done by the Contractor to the existing work shall be made good by him at his own cost.

8.11 Supervision:

38 The Contractor shall depute qualified and experienced engineers / supervisors for carrying out civil, interior, plumbing and sanitary works at site till handing over of the project.

9 SAFETY CODES

9.1 Scaffolds:

1. Suitable scaffolds shall be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration work which can be done safely from ladders. When a ladder is used, it shall be rigid construction made either of good quality wood or steel. The steps shall have a minimum width of 450 mm and a maximum rise of 300 mm. suitable hand holds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than ¼ to 1 (1/4 horizontal and 1 vertical).

2. Scaffolding or staging more than 4 m above the ground floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly bolted, braced or otherwise secured, at least 1 m above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3. Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform, gangway or stairway is more than 4 m above ground level or floor level. Suitably fenced as described in 2 above.

4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 m.

Wherever there are open excavations in ground, they shall be fenced off by suitable railing and danger signals installed at night so as to prevent persons slipping into the excavations.

5. Safe means of access shall be provided to all working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 m in length while the width between side rails in rung ladder shall in no case, be less than 290 mm for ladder upto and including 3 m in length. For longer ladders this width shall be increased at least 20 mm for each additional metre of length.

6. A sketch of the ladders and scaffolds proposed to be used shall be prepared and approval of the Engineer obtained prior to construction.

9.2 Other Safety Measures:

1. All Personnel of the contractor working within the plant site shall be provided with safety helmets. All welders shall wear welding goggles while doing welding work and all metal workers shall be provided with safety gloves. Persons employed on metal cutting and grinding shall wear safety glasses.

2. Adequate precaution 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.

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

9.3 **Excavation & Trenching:**

1. All trenches, 1.25m or more in depth shall at all times be supplied with at least one ladder for each 30 m in length or fraction thereof. The ladder shall be executed from bottoms of the trench to at least 1 m above the surface of the ground. Sides of trenches which are 1.5 m or more in depth shall be stepped back to give suitable slope or securely held by timber bracing so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m of the edges of the trench or half of the depth bottom. Under no circumstances undermining or undercutting shall be done.
2. The contractor shall taken all measures on the site of the work to protect the public from accidents and shall be bound to bear the expenses of defence of every suit, action or other proceeding at law that may be brought by any persons for injury sustained owing to neglect of the above precautions and to pay any such persons or which may with the consent of the contractor, be paid to compromise any claim by any such person.

9.4 **Demolition:**

1. Before any demolition work is commenced and also during the process of the work:
 - a) All roads open areas adjacent to the work site shall either be closed or suitably protected.
 - b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.
 - c) All practical steps shall be taken to prevent danger to persons employed from the risk of fire or explosion or flooding. No floors roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

9.5 **Personal Safety Equipment's:**

- 1 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 contractor should take adequate steps to ensure proper use of equipment by those concerned.
 - 1.1 Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
 - 1.2 Those engaged in white washing and mixing or stacking of cement bags or any materials which is injurious to the eyes shall be provided with protective goggles.
 - 1.3 Those engaged in welding works shall be provided with welder's protective eyesight lids.
 - 1.4 Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
 - 1.5 When workers are employed in sewers and manholes, which are in use, the contractor shall ensure that the manhole covers are ventilated at least for an hour before the workers are allowed to get into manholes and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public.
 - 1.6 The contractor 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. Wherever men above the age of 18 are employed on the work of such painting the following precautions should be taken:
 - 1.6.1 No paint containing lead or lead products shall be used except in the form of paste or ready made paint. Paints like vinyl and epoxies having toxic fumes should be applied after following all precautions laid down by manufacturers.
 - 1.6.2 Suitable face make should be supplied for use by the workers when paint is applied in the from of spray or a surface having lead paint dry rubbed and scraped.
 - 1.6.3 Overalls shall be supplied by the contractor to the workmen and adequate facilities shall be provided to enable the-working painters to wash during the cessation of work.
- 2 When the work is done near any public place where there is risk of drowning all necessary equipment's should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in dander and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

9.6 **Hoisting Machines:**

- 1 Use of hoisting machines and tackle including their attachments anchorage and supports shall conform to the following standards or conditions:
 - 1.1 These shall be of good mechanical constructions sound material and adequate strength and free from patent defect and shall be kept in good repair and in good working order.
 - 1.2 Every rope used in hoisting or lowering materials or as means of suspension shall be of durable quality and adequate strength and free from patent defects.
 - 1.3 Every crane driver or hosting appliance operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine including any scaffolding which or give signals.
 - 1.4 In case of every hoisting machine and of every chain ring hook, shackle shovel and pulley block used in hoisting or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
 - 1.5 In case of departmental machines, the safe working load shall be notified by the Engineer. As regards contractor's machines, the contractor shall notify the safe working load of the machine to the Engineer whenever he brings any machinery to site of work and get it verified by the Engineer concerned.

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

3 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use.

Adequate washing facilities should be provided at or near places of work.

4 These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.

5 To ensure effective enforcement of the rules and regulations relating to safety precaution the arrangements made by the contractor shall be open to inspection by the Labour Officer, Engineers of the Department or their representatives.

6 Notwithstanding the above all clauses, there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

10 MODEL RULES FOR HEALTH & SANITARY AGREEMENTS FOR WORKERS

10.1 **Application:**

1. These rules shall apply to the Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001.

10.2 **Definition:**

1. 'Work place' means a place at which at an average 50 workers are employed in connection with construction work.
2. 'Large Work Place' means a place at which an average 500 or more workers are employed in connection with construction work.

10.3 **First Aid:**

1. 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.
2. At large work place where hospital facilities are not available within easy distance of the work, first aid posts shall be established and be run by a trained compounder.
3. Where large work places are remote from regular hospitals, an in-door ward shall be provided with one bed for every 250 employees.
4. Where large work places are situated in cities, towns in their suburbs and no beds are considered necessary owing to the proximity of city or town hospitals, suitable transport shall be provided to facilitate removal of urgent cases to the hospitals.
5. At other work places, some conveyance facilities, such as a car, shall be kept readily available to take injured person or persons suddenly taken ill to the nearest hospital.

10.4 **Drinking Water:**

1. In every work place, there shall be provided and maintained at suitable places easily accessible to labour sufficient supply of cold water fit for drinking.
2. Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.
3. Every water supply of storage shall be at a distance of not less than 15 m from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well which is within the proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be dust and water proof.
4. A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

10.5 **Washing & Bathing Places:**

1. Adequate washing and bathing places shall be provided, separately for men and women.
2. Such place shall be kept in clean and drained condition.

10.6 **Scale of accommodation in latrines & urinals:**

1 The shall be provided within the precincts of every work place latrines and urinals in an accessible place, and the accommodation, separately for each of them shall not be less than the following scale:

- 1.1 Where the number of persons dose not exceed 50: 2 No of Seats
- 1.2 Where the number of persons exceeds 50, but dose not exceed 100: 3 No of Seats
- 1.3 For every additional 100: 3 No of seats per 100
- 2 In particular cases, the Engineer shall have the powers to vary the scale where necessary.

10.7 Latrines & Urinals for Women:

1. If women are employed, separate latrines and urinals screened from those for men and marked in the vernacular in conspicuous letters 'For Women only' shall be provided on the scale laid in Rule 6.6. Those for men shall be similar marked 'For Men only'. A poster showing the figure of a man or a woman shall also be exhibited at the entrance of latrines for the respective sex. There shall be adequate supply of water close to the urinals and latrines.

10.8 Latrines & Urinals:

1. All latrines shall be provided with septic tanks or leach pits in case of small units. All the latrine shall be kept in good sanitary condition.

10.9 Construction of Latrine:

1. The inside walls shall be constructed of masonry or some suitable heat resisting non-absorbent materials and shall be cement washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for this purpose and kept available for inspection. Latrines will not be of a standard lower than bore-hole system and should have thatched roofs.

10.10 Disposal of excreta:

1. Unless otherwise arranged for by the local sanitary authority, arrangements for proper disposal of excreta shall be made by septic tank or leach pit duly approved by the Engineer and in conformity with the requirements of local public health authorities.

10.11 Provision of shelter during rest:

1. At every work place there shall be provided free of cost, two suitable sheds, one for meals and the other for rest separately for men and women for the use of labour. The height of the shelter shall not be less than 3.5 m for the floor level, to the rest part of the roof. The sheds should be roofed with at least thatch and mud flooring will be provided with wall around not less than 750 mm. sheds should be kept clean and the space should be on the basis of at least 0.50 square metre per head.

10.12 Crèches:

1. At every work place, at which 50 or more women workers are ordinarily employed, there shall be provided two huts for the use of children under the age of 6 years belonging to such woman, one hut shall be used for infants games and play and the other as their bed room. The huts shall not be constructed on a lower standard than the following:

- 1.1 thatched roof
- 1.2 mud floors and walls
- 1.3 planks spread over the mud floor and covered with matting.

The huts shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the place clean. There shall be two dais in attendance. Sanitary utensils shall be provided to the satisfaction of the Health Officer of the area concerned. The use of the hut shall be restricted to children, their attendants and mothers of the children.

2. Where the number of women workers is more than 25 but less than 50, the contractor shall provide at least one but and one dai to look after the children of women workers.
3. The size of crèche or crèches shall vary according to the number of women workers.
4. The crèche or crèches shall be properly maintained and necessary equipment like toys etc shall be provided.

12 TECHNICAL SPECIFICATIONS**FINANCIAL BID: PART II****12.1 List of Approved Materials:**

1. The followings are a non-exhaustive list of preferred brand of materials to be used. In case of any items for which no brand is mentioned, then the Contractor may, after obtaining approval from Bank / Architect, use material of a popular brand readily available in the market. The Bank / Architect shall have the right to refuse to accept any items used by the Contractor without their consent, at any time of the execution of work or after completion and the Contractor is liable to replace the items with an approved one without any financial obligation on the part of the Bank.

12.1.1 Building Works:

SL NO	MATERIALS / ITEMS	SPECIFICATIONS / BRAND
1	Cement	ACC / Ultra-Tech / Ambuja or equivalent
2	MS Reinforcement	TISCON / Elegant / SRMB or equivalent
3	FRP Composite Door	AMCON / United Fibre-cast / Nyflex or equivalent
4	PVC Door	Sintex / Duroplast or equivalent
5	Aluminium Section	INDAL / BECO or equivalent
6	Floor Spring	Everite / Nita / Doorking / Hemaco or equivalent
7	Ceramic Tiles	Kajaria / Johnson / NITCO / Somany / Orient or equivalent
8	Vitrified Floor Tiles	Marbonite / Kajaria Plus / Euro / Varmora / Somany / Orient or equivalent
9	Screws	Nettlefold / GKW or equivalent
10	Locks	Godrej / Yale or equivalent
11	Aluminium Hardware Fitting	Metako / Allen / Crown or equivalent
12	Brass Hardware Fitting	Brass Art / Vijoy or equivalent
13	Float Glass	Modi / Indo Ashahi / Saint Gobain
14	White Cement-based Wall Putty	Birla White Wall Care or equivalent
15	Cement-based Paint	Snowcem Plus / Durocem / Seacem Plus or equivalent
16	Acrylic Distemper Paint	Maxilite / Tractor Acrylic/ Nerolac/ Berger or equivalent
17	Synthetic Enamel Paint	Dulux Gloss / Luxol / Apcolite or equivalent
18	Standard Acrylic Emulsion Paint	ICI Supreme 3 in 1 / Asian Paints Premium Emulsion or equivalent
19	Luxury Acrylic Emulsion Paint	ICI Velvet Touch / Berger Silk / Royal Luxury Emulsion or equivalent
20	Exterior Textured Paint	Weathercoat Textured / Weathershield Tex / Sandtex Matt or equivalent
21	Exterior Acrylic Emulsion Paint: Normal	ICI Supercoat / Ace / Walmasta or equivalent
22	Exterior Acrylic Emulsion Paint: 100% Premium Acrylic	Weathershield / Weathercoat / Snowcryl XT / Apex or equivalent
23	Exterior Acrylic Emulsion Paint: Super Protective 100% Acrylic	Weathershield Max / Apex Ultima or equivalent
24	Rust Removing Agent	Pagel Rustop / Sika Rust off or equivalent
25	Polymer-base Anti-corrosive Paint	Sika Rustop / Barcote or equivalent
26	Bonding Agent	Sika Highbond / Cico Bond EPO / Page EHI or equivalent
27	Synthetic Rubber Emulsion	Sika Latex Power / Pagel Crete A / Cico Supaplast or equivalent
28	Water Proofing Admixture	Sika Plastocrete Super / Cico Supaplast or equivalent
29	Polyster Fibre Anti-shrinkage Admixture	Recron – 3S
30	Polymerised Adhesive	Sika Tilofix / MYK Leticrete or equivalent
31	Epoxy Grouting Material	Sika TilogROUT / Latapoxy SP – 100 or equivalent

12.1.2 Plumbing & Sanitary Works:

SL NO	MATERIALS / ITEMS	SPECIFICATIONS / BRAND
1	GI Pipes & Accessories	Tata
2	PVC Pipes & Accessories	Supreme / Oriplast or equivalent

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

SL NO	MATERIALS / ITEMS	SPECIFICATIONS / BRAND
3	PPR Pipes	Supreme or equivalent
4	Water Closet / Wash Basin / Urinal	Cera / Hindware / Parryware / Neycer or equivalent
5	SS Kitchen Sink	Nirali or equivalent
6	PVC Cistern	Reliance Classic / Hindware / Parryware or equivalent
7	CP Cocks	Jaquar Florentine Collection / Essco Deluxe or equivalent

12.1.3 **electrical Works:**

SL NO	MATERIALS / ITEMS	SPECIFICATIONS / BRAND
1	Electrical Panel	Legrand / ABB / Siemens or equivalent
2	MCCB / RCCB / MCB	L&T / Legrand / Siemens / MDS / Havells or equivalent
3	Distribution Board	Legrand / L&T / Siemens / MDS or equivalent
4	Switch Fuse Unit	Havells / Standard / Siemens or equivalent
5	Voltmeter / Ammeter	AE / L&T or equivalent
6	On-load Changeover Switch	Havells / Samrat / L&T or equivalent
7	PVC Conduit	Plaza / Prestoplast / Precision / AKG or equivalent
8	Armoured Cable	Gloster / CCI / Polycab or equivalent
9	Copper Cables / Wire: Electrical	Finolex / Havells or equivalent
10	Modular Switch / Socket	MK Wrapround / Anchor Roma / Legrand or equivalent
11	Piano-type Switch / Socket	Anchor / Preeti or equivalent
12	Starter Switch & Plug-top	Northwest / Crabtree / MK or equivalent
13	Category 6 Cable	D-Link / Lucent or equivalent
14	Telephone Wire	Polycab / Finolex or equivalent
15	Light Fixture	Philips or equivalent
16	Lamps	Philips or equivalent
17	Ceiling Fan	Crompton Greaves / Bajaj or equivalent
18	Wall-mounted Fan	Crompton Greaves or equivalent
19	Exhaust Fan	Crompton Greaves or equivalent

12.2 **Building Works:**

12.2.1 **General:**

1. All materials to be used in works shall conform to Indian Standard (IS) Specifications as published by Bureau of Indian Standards (BIS) from time to time and in absence thereof those shall be done as per the approval of the Bank / Architect. In general the mode of measurements of the civil works shall be guided by IS: 1200 – 1964 (revised) for Indian Standard Methods of Measurement of Building Works.

12.2.2 **Water:**

1 Water used for mixing and curing shall be clean and free from injurious quantities of alkalis, acids, oils, salts, sugar, organic materials, vegetable growth or other substance that may be deleterious to bricks, stone, concrete or steel. potable water is generally considered satisfactory for mixing. The Ph value of water shall be not less than 6.

2 Maximum permissible limits of solids when tested in accordance with IS: 3025 shall be as under:

2.1 Organic: 200mg/l

2.2 Inorganic: 3000 mg/l

2.3 Sulphates 400 mg/l

2.4 Chlorides 2000 mg/l (for concrete not containing embedded steel) and 500 mg/l (for reinforced concrete work)

2.5 Suspended matter: 2000 mg/l

12.2.3 **Bricks:**

1. Bricks shall in general adhere to IS: 1077 – 1992 (5th revision). All bricks shall be of approved quality of standard specifications, made of good earth, uniform deep red, cherry or copper coloured, thoroughly burnt in kiln, without being vitrified, regular in shape and size, sound, hard, homogeneous in

texture, true to shape and of standard dimension and shall be free from cracks, chips, flaws, stones or humps of any kind and shall not show appreciable signs of efflorescence either in dry state or when soaked in water.

2. The size of the bricks shall be $9\frac{3}{4}'' \times 4\frac{3}{4}'' \times 2\frac{3}{4}''$ for conventional bricks or 190 mm x 90 mm x 90 mm for modular bricks.

3. The bricks shall emit a clear ringing sound on being struck and have minimum crushing strength of 105 kg/cm². All bricks, which absorb water more than 20% of their own dry weight after 24 hours of immersion in cold water, shall be rejected.

12.2.4 Cement:

1 Portland Slag cement of grades and conforming to IS:455, shall be used in all works.

2 Different types of cement shall not be mixed together. In case more than one type of cement is used in any work, a record shall be kept showing the location and the types of cement used.

3 Table showing compressive strength requirement of each type of cement for various grades when tested in accordance with IS: 4031 (Part VI):

SAMPLE		STRENGTH IN N/MM ² NOT LESS THAN FOR		
AGE AT TESTING	GRADE 33	GRADE 43	GRADE 53	
72 ± 1 hour	16.0	23.0	27.0	
168 ± 2 hour	22.0	33.0	37.0	
672 ± 4 hour	33.0	43.0	53.0	

4 Setting time of cement of any type of any grade when tested by Vicat apparatus method described in IS: 4031 shall conform to the following requirement:

4.1 Initial setting time: not less than 30 minutes

4.2 Final setting time: not more than 600 minutes

5 Cement bags must be stored in a water-tight shed having wooden floors or platforms raised at least by 50 mm from ground. Cement which is partially set or has become lumpy or caked is to be treated as damaged and shall be removed from the site immediately.

12.2.5 Sand:

1. All sand shall be clean, sharp and free from clay, loam, organic or any other foreign matters and shall be obtained from approved source. The Contractor shall get samples of sand to be used in different kind of works approved by the Architect before using in the works.

2. Sand shall be washed with clean water at the cost and expense of the Contractor if in the opinion of the Bank / Architect it is dirty.

3. Sand used in all cement concrete works must be coarse, ie it shall pass through a mesh, 4.75 mm square, measured in the clear. Sand, containing more than 10 % (ten percent) of fine grain passing through a 76 mesh as used for cement test or having fineness modulus less than 2.00, shall not be used in cement concrete works, unless approved by the Architect.

4. Medium coarse sand, with fineness modulus between 2.00 to 1.80, may be used in cement mortar for masonry and plaster works etc.

5. Sand filling in plinth or foundation, where specified, may be done with fine sand or silver sand.

12.2.6 Coarse Aggregates:

1 All coarse aggregates for concrete works must be well graded and shall be screened to remove dust and if necessary, shall be washed with clean water at the cost and expense of the Contractor as per instruction of the Architect.

2 Stone chips or ballast:

2.1 Stone chips or stone ballast for plain cement concrete (PCC) or reinforced cement concrete (RCC) shall be hard, uniform in texture, free from faults or planes of weakness and weathered faces. The ballast or chips must be free from loam, clay or any surface coating, organic matter or other impurities and dust. Stone of black and hard variety as is generally available from quarries in Pakur or Chandil areas will be normally used. The ballast or chips shall be obtained by breaking large stone blocks and must be more or less cubic in shape.

2.2 For any of the nominal sizes of graded coarse aggregates, grading shall be in conformity with the requirements laid down in IS: 383 – 1963. When coarse aggregates brought to site is ungraded, single sized coarse aggregates of different nominal sizes shall be mixed at site with the other ingredients of concrete

either directly in the mixture or on platform in proper proportions by volume. If combined aggregates are available, they need not be separated in fine and coarse, but necessary adjustment may be made in the grading by addition of single sized aggregates, as per IS: 2386 (Part I).

3 Gravel:

3.1 Gravel, for use as coarse aggregates in PCC or RCC works must be hard, absolutely free from surface coating and on being broken, the fractured surface must indicate a uniform and fine texture, free from laminations or planes of weakness. Gravel shall be thoroughly washed and free from any foreign materials.

4 *Jhama* chips:

4.1 *Jhama* chips for PCC or RCC works shall be obtained by breaking good quality *jhama* bats, must not be spongy or with any coating of foreign materials and should be homogeneous in texture. The chips shall be more or less of cubic shape.

12.2.7 **Chemical Admixtures:**

1 When required, admixtures of approved quality shall be mixed with concrete, as specified. The admixtures shall conform to IS: 9103.

2 Admixtures may be any one of the following classes for use in concrete:

2.1 Water Reducing Admixtures

2.2 Retarding Admixtures

2.3 Accelerating Admixtures

2.4 Water Reducing and Retarding Admixtures

2.5 Water Reducing and Accelerating Admixtures

2.6 Permeability Reducing (water proofing) Admixtures.

3 Liquid Admixtures: Admixtures introduced into the concrete as liquids generally fall into the following categories.

3.1 Air Entraining

3.2 Water Reducing

3.3 Water Reducing Retarders

3.4 Retarders

3.5 Water Reducing Accelerators

3.6 Accelerators.

4 Dosage of these admixtures may vary according to manufacturers specification.

5 Admixture manufacturer's recommendation shall be carefully followed so as to ensure complete solution of the product or to prepare a standard solution of uniform strength for easier use.

7 The proprietary name and the net quantity of content shall be clearly indicated in each package or container of admixtures. The admixtures shall be uniform within each batch and uniform between all batches.

12.2.8 **Steel for Reinforcement:**

1 All steel shall be clean and free from mill scales, dust, loose rust and coats of paints, oil or other coatings.

2 The steel used for reinforcement shall be any of the following types:

2.1 Mild steel and medium tensile bars conforming to IS: 432 (Part I)

2.2 High strength deformed steel bars conforming to IS: 1786

2.3 Structural steel conforming to Grade A of IS: 2062

2.4 Thermo-mechanically treated (TMT) bars.

3 Welding of reinforcement bars, if required, shall be done in accordance with the requirements of IS: 2751.

4 Mild steel is not recommended for the use in structures located in earthquake zone subjected to severe damage and for structures subjected to dynamic loading (other than wind loading) such as railway and highway bridges.

5 The TMT bars shall conform to IS: 1786 pertaining to Fe 415 D or Fe 500 D or Fe grade of steel as specified.

6 In design and construction of reinforced concrete building in seismic zone III and above, steel reinforcement of Grade Fe 415 D shall be used. However, high strength deformed steel bars, produced by thermo-mechanical treatment process of grade Fe 415, Fe 500 and Fe 550 having elongation more than 14.5 % and conform to other requirements of Fe 415 D, Fe 500 D and Fe 550 D respectively of IS 1786 may also be used for reinforcement.

12.2.9 Floor & Wall Tiles:**1 Ceramic Tiles:**

1.1 The tiles shall be of approved make and shall generally conform to IS: 15622. They shall be flat, and true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance.

1.2 Classification and characteristics of ceramic tiles shall be as per IS: 13712.

1.3 The tiles shall be square or rectangular of nominal size. Thickness shall be specified by the manufacturer. It includes the profiles on the visible face and on the rear side.

1.4 The top surface of the tiles shall be glazed. Glaze shall be either glossy or matt as specified. The underside of the tiles shall not have glaze on more than 5% of the area in order that the tile may adhere properly to the base. The edges of the tiles shall be preferably free from glaze. However, any glaze if unavoidable, shall be permissible on only up to 50 per cent of the surface area of the edges.

2 Vitrified Tiles:

2.1 All specifications shall be as per above excepting the tiles shall conform to Table No: 12 of IS: 15622 (Tiles with water absorption $E \leq 0.08$ per cent Group B IIb) and the joint thickness in flooring shall not be more than 1 mm.

12.2.10 Glass:

1. All glass shall be of specified type, colour, visibility and sound and shall be free from cracks, flaws, bubbles and blemishes.

2. Float glass, if specified, shall be clear float glass and should be approved by the Architect. It shall be clear, float transparent and free from cracks subject to allowable defects. The float glass shall conform to the IS: 14900.

3. Glass shall not weigh less than 7.4 kg/m^2 , unless otherwise specified.

12.2.11 Cement Mortar:

1 Proportioning: Proportioning on weight basis shall be preferred taking into account specific gravity of sand and moisture content. Cement bag weighting 50 kg shall be taken as 0.035 cubic metre. Sand shall be measured on the basis of its dry volume in the case of volumetric proportioning.

2 Mixing: The mixing of mortar shall be done in mechanical mixers operated manually or by power as decided by the Architect. The Architect may, however, permit hand mixing at his discretion taking into account the nature, magnitude and location of the work and practicability of the use of mechanical mixers or where item involving small quantities are to be done or if in his opinion the use of mechanical mixer is not feasible. In cases, where mechanical mixers are not to be used. The Contractor shall take permission from the Architect in writing before the commencement of the work.

3 Mortar shall be used as soon as possible after mixing and before it begins to set, and in any case within half hour, after the water is added to the dry mixture.

12.2.12 Dismantling & Maintenance Works:

4 Necessary propping, shoring and or under pinning shall be provided to ensure the safety of the adjoining work or property before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining work or property. Wherever specified, temporary enclosures or partitions and necessary scaffolding with suitable double scaffolding and proper cloth covering shall also be provided, as directed by the Bank / Architect.

5 Necessary precautions shall be taken to keep noise and dust nuisance to the minimum. Helmets, goggle, safety belts etc should be used whenever required and as directed by the Bank / Architect. The demolition work shall be proceeded with in such a way that it causes the least damage and nuisance to the adjoining building and the public.

6 Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height or by demolishing roofs, masonry etc. shall be carefully removed first. Chisels and cutters may be used carefully as directed. The dismantled articles shall be removed manually or otherwise, lowered to the ground (and not thrown) and then properly stacked as directed by the Architect.

7 Where existing fixing is done by nails, screws, bolts, rivets, etc., dismantling shall be done by taking out the fixing with proper tools and not by tearing or ripping off.

8 Any serviceable material, obtained during dismantling or demolition, shall be separated out and stacked properly as directed by the Engineer-in-Charge within a lead of 50 m. All unserviceable materials, rubbish etc. shall be disposed off as directed by the Bank / Architect.

9 The contractor shall maintain / disconnect existing services, whether temporary or permanent, where required by the Bank / Architect.

- 10 No demolition work should be carried out at night especially when the building or structure to be demolished is in an inhabited area.
- 11 Screens shall be placed where necessary to prevent injuries due to falling pieces.
- 12 Water may be used to reduce dust while tearing down plaster from brick work.
- 13 Safety belts shall be used by labourers while working at higher level to prevent falling from the structure.
- 14 First-aid equipment shall be got available at all demolition works of any magnitude.
- 15 Measurement:
 - 15.1 Measurement for concrete structures, brick works etc shall be in cubic metre, whereas those for partitions, floorings etc shall be square metre or as directed by the Architect.
 - 15.2 Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed.
- 16 Rates:
 - 16.1 The rate shall include the cost of all labour involved and tools used in demolishing and dismantling including scaffolding.
 - 16.2 The rate shall also include the charges for separating out and stacking the serviceable material properly and disposing off unserviceable material within a distance of 50 m.
 - 16.3 The rate shall also include for temporary shoring for the safety of portions not required to be pulled down, or of adjoining property, and providing temporary enclosures or partitions, where considered necessary.

12.2.13 Earthwork:

- 1 Protections:
 - 1.1 Excavation where directed by the Bank / Architect shall be securely barricaded and provided with proper caution signs, conspicuously displayed during the day and properly illuminated with red lights and / or written using fluorescent reflective paint as directed during the night to avoid accident.
 - 1.2 The Contractor shall take adequate protective measures to see that the excavation operations do not damage the adjoining structures or dislocate the services. Water supply pipes, sluice valve chambers, sewerage pipes, manholes, drainage pipes and chambers, communication cables, power supply cables etc, met within the course of excavation shall be properly supported and adequately protected, so that these services remain functional. However, if any service is damaged during excavation shall be restored in reasonable time.
 - 1.3 Excavation shall not be carried out below the foundation level of the adjacent buildings until underpinning, shoring etc is done as per the directions of the Bank / Architect for which payment shall be made separately.
 - 1.4 Any damages done by the Contractor to any existing work shall be made good by him at his own cost. Existing drains pipes, culverts, over head wires, water supply lines and similar services encountered during the course of execution shall be protected against damage by the Contractor. The Contractor shall not store material or otherwise occupy any part of the site in manner likely to hinder the operations of such services.
- 2 Antiquities and useful materials:
 - 2.1 Any finds of archaeological interest such as relics of antiquity, coins, fossils or other articles of value shall be delivered to the Bank and shall be the property of the Government.
 - 2.2 Any material obtained from the excavation which in the opinion of the Bank / Architect is useful shall be stacked separately in regular stacks as directed by the Bank / Architect and shall be the property of the Government.
- 3 Site clearance:
 - 3.1 Before the earth work is started, the area coming under cutting and filling shall be cleared of shrubs, rank vegetation, grass, brushwood, trees and saplings of girth up to 30 cm measured at a height of one metre above ground level and rubbish removed up to a distance of 50.0 m outside the periphery of the area under clearance. The roots of trees and saplings shall be removed to a depth of 60 cm below ground level or 30 cm below formation level or 15 cm below sub grade level, whichever is lower, and the holes or hollows filled up with the earth, rammed and levelled.
 - 3.2 Existing structures and services such as old buildings, culverts, fencing, water supply pipe lines, sewers, power cables, communication cables, drainage pipes etc, within or adjacent to the area if required to be diverted / removed, shall be diverted / dismantled as per directions of the Bank / Architect and payment for such diversion / dismantling works shall be made separately.
 - 3.3 Lead mentioned in the 'Schedule Of Quantities' is the average lead for the disposal of excavated

earth within the site of work. The actual lead for the lead for the disposal of earth may be more or less than the 50 m for which no cost adjustment shall be made in the rates.

3.4 Disposal of Earth shall be disposed off at the specified location or as decided by the Bank. The Contractor has to take written permission about place of disposal of earth before the earth is disposed off, from Bank.

4 Setting out and making profiles:

4.1 A masonry pillar to serve as a bench mark will be erected at a suitable point in the area, which is visible from the largest area. This bench mark shall be constructed and connected with the standard bench mark as approved by the Bank / Architect. Necessary profiles with strings stretched on pegs and bamboos shall be made to indicate the correct formation levels before the work is started. The Contractor shall supply labour and material for constructing bench mark, setting out and making profiles and connecting bench mark with the standard bench mark at his own cost. The pegs and bamboos and the bench mark shall be maintained by the Contractor at his own cost during the excavation to check the profiles.

5 Excavation in all kinds of soils:

5.1 All excavation operations manually or by mechanical means shall include excavation and 'getting out' the excavated materials. In case of excavation for trenches, basements, water tanks etc 'getting out' shall include throwing the excavated materials at a distance of at least one metre or half the depth of excavation, whichever is more, clear off the edge of excavation. In all other cases 'getting out' shall include depositing the excavated materials as specified. The subsequent disposal of the excavated material shall be either stated as a separate item or included with the items of excavation stating lead.

5.2 In firm soils, the sides of the trenches shall be kept vertical up to a depth of 2.0 m from the bottom. For greater depths, the excavation profiles shall be widened by allowing steps of 50 cm on either side after every 2.0 m from the bottom. Alternatively, the excavation can be done so as to give slope of 1:4 (1 horizontal : 4 vertical). Where the soil is soft, loose or slushy, the width of steps shall be suitably increased or sides sloped or the soil shored up as directed by the Bank / Architect. It shall be the responsibility of the Contractor to take complete instructions from the Bank / Architect regarding the stepping, sloping or shoring to be done for excavation deeper than 2.0 m.

5.3 The excavation shall be done true to levels, slope, shape and pattern indicated by the Bank / Architect. Only the excavation with additional allowances for centring and shuttering or as required by the Bank / Architect shall be measured and recorded for payment.

5.4 In case of excavation for foundation in trenches or over areas, the bed of excavation shall be to the correct level or slope and consolidated by watering and ramming. If the excavation for foundation is done to a depth greater, the excess depth shall be made good by the Contractor at his own cost with the concrete of the mix used for levelling / bed concrete for foundations. Soft / defective spots at the bed of the foundations shall be dug out and filled with concrete as directed by the Bank / Architect.

5.5 In all other cases where the excavation is taken deeper by the Contractor, it shall be brought to the required level by the Contractor at his own cost by filling in with earth duly watered, consolidated and rammed.

5.6 In case the excavation is done wider, additional filling wherever required on the account shall be done by the Contractor at his own cost.

6 Earth work by mechanical means:

6.1 Earth work by mechanical means involves careful planning keeping in view site conditions ie type of soil, nature of excavation, distances through which excavated soil is to be transported and working space available for employing these machines. The earth moving equipment should be accordingly selected.

6.2 The earth moving equipment consists of excavating and transporting equipment. Excavating equipment's may be further classified as excavators and tractor based equipment's.

7 Filling:

7.1 The earth used for filling shall be free from all roots, grass, shrubs, rank vegetation, brushwood, tress, sapling and rubbish.

7.2 Filling with excavated earth shall be done in regular horizontal layers each not exceeding 20 cm in depth. All lumps and clods exceeding 8 cm in any direction shall be broken. Each layer shall be watered and consolidated with steel rammer or ½ tonne roller. Where specified, every third and top must layer shall also be consolidated with power roller of minimum 8 tonnes. Wherever depth of filling exceeds 1.5 metre vibratory power roller shall be used to consolidate the filing unless otherwise directed by Bank / Architect. The top and sides of filling shall be neatly dressed. The contractor shall make good all subsidence and shrinkage in earth fillings, embankments, traverses etc. during execution and till the completion of work

unless otherwise specified.

8 Measurements

8.1 The length and breadth of excavation or filling shall be measured with a steel tape correct to the nearest cm. The depth of cutting or height of filling shall be measured, correct to 5 mm, by recording levels before the start of the work and after the completion of the work. The cubical contents shall be worked out to the nearest two places of decimal in cubic metres.

8.2 In case the ground is fairly uniform and where the site is not required to be levelled, the Bank / Architect may permit the measurements of depth of cutting or height of filling with steel tape, correct to the nearest cm.

8.3 Where it is not possible or convenient to measure the depth of cutting by recording levels as specified above, quantity of excavation shall be worked out from filling. The actual measurements of the fill shall be calculated by taking levels of the original ground before start of the work after site clearance and after compaction of the fill as specified and the quantity of earth work so computed shall be reduced by 10% in case of consolidated fills and by 5% in case the consolidation is done by heavy mechanical machinery to arrive at the net quantity of excavation for payment. No such deduction shall, however, be made in case of consolidation by heavy mechanical machinery at optimum moisture content, or when the consolidated filling is in confined situations such as under floors.

9 Rates

9.1 Rates for Earthwork shall include the following:

9.2 Excavation and depositing excavated material as specified.

9.3 Handling of antiquities and useful material.

9.4 Protection.

9.5 Site clearance.

9.6 Setting out and making profiles.

9.7 Bailing out or pumping of rain water from excavations.

9.8 Initial lead of 50 m and lift of 1.5 m.

9.9 No deduction shall be made from the rate if in the opinion of the Bank / Architect, any operations specified above are not required to be carried out on any account whatsoever.

12.2.14 Brick Works:

17 Mortar:

17.1 The mortar for the brick work shall be as specified, and conform to accepted standards. Lime shall not be used where reinforcement is provided in brick work.

18 Soaking of Bricks:

18.1 Bricks shall be soaked in water before use for a period for the water to just penetrate the whole depth of the bricks.

18.2 Alternatively bricks may be adequately soaked in stacks by profusely spraying with clean water at regular intervals for a period not less than six hours.

18.3 The bricks required for masonry work using mud mortar shall not be soaked.

18.4 When the bricks are soaked they shall be removed from the tank sufficiently early so that at the time of laying they are skin-dry. Such soaked bricks shall be stacked on a clean place where they are not again spoiled by dirt, earth etc.

19 Laying:

19.1 Bricks shall be laid in English bond unless otherwise specified.

19.2 For brick work in half brick wall, bricks shall be laid in stretcher bond.

19.3 Half or cut bricks shall not be used except as closer where necessary to complete the bond. Closers in such cases, shall be cut to the required size and used near the ends of the wall.

19.4 Header bond shall be used preferably in all courses in curved plan for ensuring better alignment.

19.5 Header bond shall also be used in foundation footings unless thickness of walls (width of footing) makes the use of headers impracticable. Where thickness of footing is uniform for a number of courses, the top course of footing shall be headers.

19.6 All loose materials, dirt and set lumps of mortar which may be lying over the surface on which brick work is to be freshly started, shall be removed with a wire brush and surface wetted.

19.7 Bricks shall be laid on a full bed of mortar, when laying, each brick shall, be properly bedded and set in position by gently pressing with the handle of a trowel.

19.8 The inside face shall be buttered with mortar before the next brick is laid and pressed

- against it.
- 19.9 Joints shall be fully filled and packed with mortar such that no hollow space are left inside the joints.
- 19.10 The walls shall be taken up truly in plumb or true to the required batter where specified. All courses shall be laid truly horizontal and all vertical joints shall be truly vertical. Vertical joints in the alternate course shall come directly one over the other.
- 19.11 Quoin, jambs and other angles shall be properly plumbed as the work proceeds. Care shall be taken to keep the perpends properly aligned within following maximum permissible tolerances:
- 19.11.1 Deviation from vertical within a storey shall not exceed 6 mm per 3 m height.
- 19.11.2 Deviation in verticality in total height of any wall of building more than one storey in height shall not exceed 12.5 mm.
- 19.11.3 Deviation from position shown on plan of any brick work shall not exceed 12.5 mm.
- 19.11.4 Relative displacement between load bearing wall in adjacent storeys intended to be vertical alignments shall not exceed 6 mm.
- 19.12 No part of the wall during its construction shall rise more than one metre above the general construction level.
- 19.13 Parts of wall left at different levels shall be raked back at an angle of 45° or less with the horizontal.
- 19.14 Teething shall not be permitted as an alternative to raking back.
- 19.15 For half brick partition to be keyed into main walls, indents shall be left in the main walls.
- 19.16 All pipe fittings and specials, spouts, hold fasts and other fixtures which are required to be built into the walls shall be embedded, as specified, in their correct position as the work proceeds unless otherwise directed by the Architect.
- 19.17 Bricks shall be laid with frog (where provided) up. However, when top course is exposed, bricks shall be laid with frog down. For the bricks to be laid with frog down, the frog shall be filled with mortar before placing the brick in position.
- 19.18 In case of walls one brick thick and under, one face shall be kept even and in proper plane, while the other face may be slightly rough. In case of walls more than one brick thick, both the faces shall be kept even and in proper plane.
- 19.19 Care shall be taken during construction that edges of jambs, sills and projections are not damaged in case of rain. New built work shall be covered with gunny bags or tarpaulin so as to prevent the mortar from being washed away. Damage, if any, shall be made good to the satisfaction of the Architect.
- 19.20 Specified thickness of joints shall be of 1 cm. Deviation from the specified thickness of all joints shall not exceed one-fifth of specified thickness.
- 19.21 The face of brick work may be finished flush or by pointing.
- 19.21.1 In flush finishing either the face joints of the mortar shall be worked out while still green to give a finished surface flush with the face of the brick work or the joints shall be squarely raked out to a depth of 1 cm while the mortar is still green for subsequently plastering. The faces of brick work shall be cleaned with wire brush so as to remove any splashes of mortar during the course of raising the brick work.
- 19.21.2 In pointing, the joints shall be squarely raked out to a depth of 1.5 cm while the mortar is still green and raked joints shall be brushed to remove dust and loose particles and well wetted, and shall be later refilled with mortar to give ruled finish.
- 20 Curing:
- 20.1 The brick work shall be constantly kept moist on all faces for a minimum period of 7 (seven) days.
- 20.2 Brick work done during the day shall be suitably marked indicating the date on which the work is done so as to keep a watch on the curing period.
- 21 Scaffolding:
- 21.1 Scaffolding shall be strong to withstand all dead, live and impact loads which are likely to come on them.
- 21.2 Scaffolding shall be provided to allow easy approach to every part of the work.
- 22 Measurement:
- 22.1 All brickworks of one brick thickness or more shall be measured in cubic metre only.
- 22.2 Brickworks of half brick thickness or brick-on-edge shall be measured in square metre.
- 22.3 Separate measurements shall be taken for works in substructures and superstructures and also the works in superstructures shall be measured separately for each floor or up to heights of 4.0 m or as specified.
- 22.4 No deduction shall be allowed for any other materials embedded within the work and forming part of it, unless otherwise specified.
- 23 Rates:
- 23.1 The rate shall include the cost of materials and labour required for all the operations described above

except for any reinforcement and its encasement in cement mortar or cement concrete. The rate shall also include the following:

- 23.1.1 Raking out joints or finishing joints flush as the work proceeds;
- 23.1.2 Preparing tops of existing walls and the like for raising further new brick work.
- 23.1.3 Rough cutting and waste for forming gables, splays at eaves and the like.
- 23.1.4 Leaving holes for pipes up to 150 mm diameter and encasing hold fasts etc.
- 23.1.5 Rough cutting and waste for brick work curved in plan and for backing to stone or other types of facing.
- 23.1.6 Embedding in ends of beams, joists, slabs, lintels, sills, trusses etc.
- 23.1.7 Bedding wall plates, lintels, sills, roof tiles, corrugated sheets, etc in or on walls if not covered in respective items and
- 23.1.8 Leaving chases of section not exceeding 50 cm in girth or 350 cm² in cross section.
- 23.1.9 Brick on edge courses, cut brick corners, splays reveals, cavity walls, brick works curved on plan to a mean radius exceeding six metres.

12.2.15 Shuttering & Centring Works:

24 General:

24.1 Form work shall include all temporary or permanent forms or moulds required for forming the concrete which is cast-in-situ, together with all temporary construction required for their support.

24.2 Form work shall be designed and constructed to the shapes, lines and dimensions with the minimum tolerance.

24.3 It shall be strong enough to withstand the dead and live loads and forces caused by ramming and vibrations of concrete and other incidental loads, imposed upon it during and after casting of concrete.

24.4 It shall be made sufficiently rigid by using adequate number of ties and braces, screw jacks or hard board wedges where required shall be provided to make up any settlement in the form work either before or during the placing of concrete.

24.5 Form shall be so constructed as to be removable in sections in the desired sequence, without damaging the surface of concrete or disturbing other sections, care shall be taken to see that no piece is keyed into the concrete.

25 Materials:

25.1 All propping and centring should be either of steel tubes with extension pieces or built up sections of rolled steel.

25.2 Form work and concreting of upper floor shall not be done until concrete of lower floor has set at least for 14 days.

25.3 Shuttering used shall be of sufficient stiffness to avoid excessive deflection and joints shall be tightly butted to avoid leakage of slurry.

25.4 Form work shall be properly designed for self weight, weight of reinforcement, weight of fresh concrete, and in addition, the various live loads likely to be imposed during the construction process (such as workmen, materials and equipment).

25.5 In case the height of centring exceeds 3.50 m, the prop may be provided in multi-stages.

26 Stripping Time:

26.1 Table showing stripping time for different grades of cement:

SL NO	TYPE OF FORM WORK	MIN TIME FOR OPC-33	MIN TIME FOR OPC-43	MIN TIME FOR PPC
1	Vertical form work to columns, walls and beams	16 hours – 24 hours	16 hours – 24 hours	24 hours – 36 hours
2	Soffit form work to slabs (Props to be re-fixed immediately after removal of form work)	3 days	3 days	4 days
3	Soffit form work to beams (Props to be re-fixed immediately after removal of form work)	7 days	7 days	10 days
4	Props to slabs			
4.1	Spanning up to 4.5 m	7 days	7 days	10 days
4.2	Spanning over 4.5 m	14 days	14 days	20 days
5	Props to beams and arches			
5.1	Spanning up to 6.0 m	14 days	14 days	20 days
5.2	Spanning over 6.0 m	21 days	21 days	30 days

26.2 In case of cantilever slabs and beams, the centring shall remain till structures for counter acting or bearing down have been erected and have attained sufficient strength.

26.3 Work damaged through premature or careless removal of forms shall be reconstructed within 24 hours.

27 The design of form work shall conform to sound Engineering practises and relevant IS codes.

28 The completed form work shall be inspected and approved by the Architect before the reinforcement bars are placed in position.

29 Measurement:

29.1 All measurements shall be in square metre up to the thickness or height of concreting.

29.2 No deductions from the shuttering due to the openings/ obstructions shall be made if the area of each openings / obstructions does not exceed 0.4 square metre. Nothing extra shall be paid for forming such openings.

30 Rate: The rate of the form work includes the cost of labour and materials required for all the operations described

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

above.

12.2.16 Cement Concrete Works:

1 Mixing:

1.1 The unit of measurement of cement shall be one bag of cement of weight 50 kg and this shall be taken as 0.035 m³. The proportion of sand shall be on the basis of its dry volume and bulking may be allowed only in case of damp sand.

1.2 All structural concrete shall be machine mixed in proportions specified until the time when a uniform consistency in form is achieved, but in no case the mixing shall be done for less than 2 minutes.

1.3 For small amount of concrete where machine mixing is not feasible, hand mixing may be allowed by the Architect on condition that 10% (ten percent) extra quantity of cement has to be added in each batch.

1.4 Water mixed concrete shall not be kept unused for long time and in general should be used up within half hour of mixing.

1.5 The quantity of water in the mixture shall be such so that proper workability is obtained and shall be as follows per cubic metre of concrete:

1.5.1 for 1:3:6 mix – 34 litre

1.5.2 for 1:2:4 mix – 32 litre

1.5.3 for 1:1.5:3 mix – 30 litre

1.5.4 for 1:1:2 mix – 27 litre

1.6 Nominal Mix concrete may be used for concrete of M20 or lower as per IS: 456 – 2000.

1.7 For grade above M20, Design Mix Concrete has to be adopted, where mix proportion is determined by specifying target strength at a higher level than characteristics strength, so that the former may be attained at 28 days in site.

2 Sampling & Testing:

2.1 Sampling shall be done in regular frequencies at random procedure in standard cubes.

2.2 Tests shall be carried out to determine the strength of concrete achieved after 7 (seven), 14 (fourteen) and 28 (twenty-eight) days respectively.

2.3 The tests should be conducted in standard laboratory at the expense of the Contractor and the test results, in duplicate, shall be directly sent to the Architect.

3 Compaction:

3.1 The concrete laid shall be properly compacted into a mass but without disturbing the homogeneity of the mixture.

3.2 Proper care shall be taken so that the water content remains constant and segregation of aggregates does not occur.

4 Protection & Curing:

4.1 The freshly laid concrete shall be protected for the first 2 (two) hours from rapid drying, rain and shocks.

4.2 After 24 (twenty-eight) hours of laying, the concrete surface shall be cured by water for 7 (seven) days minimum by flooding water of 25 mm level on flat surface or covering the surfaces with absorptive materials kept wet for the stipulated time.

5 Measurement: All measurements shall be done in cubic metre after excluding all voids and openings.

6 Rate: The rate shall include all materials and labour, including tools and machineries and hire charges for scaffolding, centring and staging, if required.

12.2.17 Plaster Works:

1 The proportion of mortar for exterior and interior plaster work shall be as per Clause No: 32.

2 The thickness shall be as specified by the Architect with corners and edges rounded off or chamfered as directed without any extra cost.

3 All concrete surfaces shall be chipped off before plastering.

4 Measurement: Measurement shall be done in square metre after deducting openings in walls.

5 Rate: The rate shall include all materials and labour including tools and machineries and hire charges for scaffolding, if required.

12.2.18 Wood Works:

6 Timber:

6.1 The timber shall be free from decay, fungal growth, boxed heart, pitch pockets or streaks on the exposed edges, splits and cracks.

6.2 Timber shall be either air seasoned or kiln seasoned. Kiln seasoning of timber, where specified, shall be done as per

IS: 1141 in a plant approved by Bank / Architect.

7 Panelling Materials:

7.1 Timber: Timber panels shall be preferably made of timber of larger width. The minimum width and thickness of a panel shall be 150 mm and 15 mm respectively. When made from more than one piece, the pieces shall be joined with a continuous tongue and groove joint, glued together. The grains of timber panels shall run along the longer dimensions of the panels. The panels shall be designed such that no single panel exceeds 0.5 m² in area.

7.2 Plywood Boards: The veneers of the plywood boards shall be either rotary cut or sliced and shall be sufficiently smooth to permit an even spread of glue. Face veneers may be either decorative on both sides or one side commercial and the other decorative. Plywood shall be of boiling water proof (BWP) grade or boiling water resistant (BWR) grade as per IS: 303.

7.3 Particle Boards: Particle boards shall be of medium density and manufactured from particles of agro waste, wood or ligno-cellulose ie material blended with adhesive and formed into solid panels under the influence of heat, moisture, pressure etc. The particle boards shall be flat pressed three layered or graded and of Grade – I as per Table No: 1 of IS: 3087. Both surfaces of the boards shall be sanded to obtain a smooth finish and shall conform to IS: 3087.

7.4 Non-asbestos Fibre Boards: Fibre boards shall be of medium density cement board reinforced with wood fibre, produced by fibrillating steamed wood under pressure, blended with adhesive and wax and formed into solid panels under controlled conditions of heat and pressure as per IS: 14862.

7.5 Adhesive: Adhesives used for bonding shall be BWP type synthetic resin conforming to IS: 848.

8 Timber Frameworks:

8.1 General: Timber shall be sawn in the direction of the grains. All members of a frame shall be of the same species of timber and shall be straight without any warp or bow. Frames shall have smooth, well-planed (wrought) surfaces except the surfaces touching the walls, lintels, sill etc, which may be left clean sawn. Rebates, rounding or moulding shall be done before the members are jointed into frames. The depth of the rebate for housing the shutters shall be 15 mm, and the width of the rebates shall be equal to the thickness of the shutters. A tolerance of ± 2 mm shall be permitted in the specified finished dimensions of timber sections in frames.

8.2 Joints: The jamb posts shall be through tenoned in to the mortise of the transoms to the full thickness of the transoms and the thickness of the tenon shall be not less than 2.5 cm. The tenons shall closely fit into the mortise without any wedging or filling. The contact surface of tenon and mortise before putting together shall be glued with polyvinyl acetate (PVA) dispersion based adhesive conforming to IS: 4835 or adhesive conforming IS: 851 and pinned with 10 mm diameter hard wood dowels, star shaped metal pins. The joints shall be at right angles when checked from the inside surfaces of the respective members. The joints shall be pressed in position. Each assembled door frame shall be fitted with a temporary stretcher and a temporary diagonal brace on the rebated faces.

8.3 Fixing of frames: The frames shall be got approved by the Bank / Architect before being painted, oiled or otherwise treated and before fixing in position. The surface of the frames abutting masonry or concrete and the portions of the frames embedded in floors shall be given a coating of coal tar. Frames shall be fixed to the abutting masonry or concrete with hold-fasts or metallic clamps as specified. After fixing, the jamb posts of the frames shall be plugged suitably and finished neat. Vertical members of the door frames shall be embedded in the floor for the full thickness of the floor finish and shall be suitably struttred and wedged in order to prevent warping during construction. A minimum of two hold fasts shall be fixed on each side of door and window frames. Hold fasts and metallic clamps shall be measured and paid for separately.

8.4 Measurement:

8.4.1 Wood work wrought, framed and fixed shall be measured for finished dimension without any allowance for the wastage or for dimensions beyond specified dimension.

8.4.2 In case of members having mouldings, rounding or rebates and members of circular or varying sections, finished dimensions shall be taken as the sides of the smallest square or rectangle from which such a section can be cut.

8.4.3 Length of each member shall be measured over all to the nearest cm so as to include projection for tenons.

8.4.4 Width and thickness shall be measured to the nearest mm and the quantity shall be worked out in unit of up to three places of decimal.

8.5 Rates: The rate shall include the cost of material and labour involved in all the operations described above except the hold fasts or metallic clamps which will be paid for separately.

9 Fibre Glass Reinforced Plastic (FRP) Door Frames: Door frames shall be three legged of cross section 90 mm x 45 mm having single rebate of size 32 mm x 15 mm to receive shutter of 30 mm thickness. The frame shall be made of laminate of thickness of 2 mm and shall be filled with wooden blocks of exterior grade MDF or seasoned and treated hard wood inside the laminate in all the three legs of the frame. The frame to be moulded by either hand lay up or resin transfer moulding process. The process shall consist of laying gel-coat at 1000 g/m² and laid over with layer of FRP mat (CSM mat) gelcoat and FRP (CSM mat) are defined in IS: 14856. The CSM mat shall be bonded with isophthalic resin in the ratio not less than 1:2 (one part of mat to two parts of isophthalic resin and fillers and additives) by weight. The edge shall be sealed with gel-coat and FRP mat to obtain smooth finish. Sufficient roving shall be laid in the corner to have smooth curve while laying the CSM mat.

10 Shutters:

10.1 Flush Doors: Flush door shutters shall have a solid core and may be of the decorative or non-decorative (paintable type as per IS: 2202 – Part I). Nominal thickness of shutters may be 25 mm, 30 mm or 35 mm. Thickness and type of shutters shall be as specified. All four edges of the shutters shall be square. The shutter shall be free from twist or warp in its plane. Lipping, where specified, shall be provided internally on all edges of the shutters. Lipping shall be done with battens of first class hardwood or as specified of depth not less than 25 mm.

10.2 Fibre Glass Reinforced Plastic (FRP) Door Shutters: FRP shutters shall be manufactured conforming to the specifications as per IS: 14856 and nomenclature of item and direction of Bank / Architect. Blocks of any seasoned hardwood of bulk density not less than 450 kg/m³ at 12 per cent moisture content or any other material of sufficient thickness and

length shall be provided inside the shutter at suitable place to hold fittings and fixtures such as aldrops, tower bolt, handle, sliding door bolt, mortice lock etc. Blocks for hinges shall be provided at three locations, unless otherwise specified by the purchaser. One at the centre and other two at 200 mm from the top and the bottom of the shutter. Blocks shall be provided at predetermined places in the shutter so as to fix hinges mortice locks, tower bolts, aldrops, door closures, etc. The finished surface shall be buffed and polished with wax.

10.3 Fixing:

10.3.1 For side hung shutters of height up to 1.2 m, each leaf shall be hung on two hinges at quarter points and for shutter of height more than 1.2 m, each leaf shall be hung on three hinges one at the centre and the other two at 200 mm from the top and bottom of the shutters.

10.3.2 Top hung and bottom hung shutters shall be hung on two hinges fixed at quarter points of top rail or bottom rail.

10.3.3 Centre hung shutter shall be suspended on a suitable pivot in the centre of the frame. Size and type of hinges and pivots shall be as specified.

10.3.4 Flap of hinges shall be neatly counter sunk into the recesses cut to the exact dimensions of flap.

10.3.5 Screws for fixing the hinges shall be screwed in with screw driver and not hammered in.

10.3.6 Unless otherwise specified, shutters of height more than 1.2 mm shall be hung on butt hinges of size 100 mm and for all other shutters of lesser height butt hinges of size 75 mm shall be used.

10.3.7 For shutter of more than 40 mm thickness butt hinges of size 125 mm x 90 mm x 4 mm shall be used.

10.3.8 Continuous (piano) hinges shall be used for fixing cup-board shutters where specified.

10.4 Measurement: Length and width of the shutters shall be measured to the nearest cm in closed position covering the rebates of the frames but excluding the gap between the shutter and the frame. Overlap of two shutters shall not be measured. No deduction shall be made for providing venetian opening and opening for glazing.

10.5 Rates: The rate includes the cost of material and labour involved in all the operations described above.

12.2.19 Aluminium Works:

1 Aluminium Sections:

1.1 Aluminium sections used for fixed/open-able windows, ventilators, partitions, frame work and doors etc shall be suitable for use to meet architectural designs to relevant works and shall be subject to approval of the Architect for technical, structural, functional and visual considerations. The aluminium extruded sections shall conform to IS: 733 and IS: 1285 for chemical composition and mechanical properties. The stainless steel screws shall be of grade AISI: 304.

1.2 Aluminium glazed doors, windows etc shall be of sizes, sections and details. The details may be varied slightly to suit the standards adopted by the manufacturers of the aluminium work, with the approval of the Architect. Before proceeding with any fabrication work, the contractor shall prepare and submit, complete fabrication and installation drawings for each type of glazing doors, windows, ventilators and partition etc for the approval of the Architect. If the sections are varied, the contractor shall obtain prior approval of the Architect and nothing extra shall be paid on this account.

2 Anodising:

2.1 Standard aluminium extrusion sections are manufactured in various sizes and shapes in wide range of solid and hollow profiles with different functional shapes for architectural, structural glazing, curtain walls, doors, window and ventilators and various other purposes. The anodising of these products is required to be done before the fabrication work by anodising / electro coating plants which ensures uniform coating in uniform colour and shades. The extrusions are anodised up to 30 micron in different colours. The anodised extrusions are tested regularly under strict quality control adhering to Indian Standard.

3 EPDM Gaskets:

3.1 The EPDM Gaskets shall be of size and profile and as called for, to render the glazing, doors, windows, ventilators etc air and water tight. Samples of gaskets shall be submitted for approval and the EPDM gasket approved by the Architect shall only be used. The Contractor shall submit documentary proof of using the above material in the work to the entire satisfaction of the Architect.

4 Sealant:

4.1 The sealants of approved grade and colour shall only be used. The silicone for perimeter joints (between aluminium section and RCC / brick masonry) shall be of make approved by the Architect.

4.2 Sealants should be applied with tools after proper masking of adjoining surfaces with masking tapes.

5 Frames & Shutters:

5.1 Frames and shutters shall be square and flat, the corners being fabricated to a true right angle. Both the fixed and opening frames shall be constructed of sections which have been cut to length, mitred and welded at the corners.

5.2 Where hollow sections are used with welded joints, argon-arc welding or flash butt welding shall be employed (gas welding or brazing not to be done). Subdividing bars of units shall be tenoned and riveted into the frame.

6 Fittings:

6.1 Stainless Steel Friction Stay: The stainless steel (SS) friction stays of make approved by the Architect shall be used. The SS friction stays shall be of grade AISI: 304 and of sizes specified in nomenclature of item.

6.2 Lockable Handles: The lockable handle shall be of make approved by the Architect and of required colour to match the colour of powder coated / anodised aluminium window sections.

6.3 Hydraulic Floor Spring: The hydraulic floor spring shall be heavy duty double action floor spring of make approved by the Architect suitable for door leaf of weight minimum 100 kg. The top cover plate shall be of stainless steel, flushing with floor finish level. The Contractor shall cut the floor properly with stone cutting machine to exact size and shape. The spindle of suitable length to accommodate the floor finish shall be used. The Contractor shall give the guarantee duly supported by the company for proper functioning of floor spring at least for 10 years.

6.4 Tubular Handle: The tubular handle bar shall be aluminium polyester powder coated minimum 50 micron to required colour / anodised. Outer diameter of tube shall be 32 mm, tube thickness 3.0 mm and centre to centre length 2115 mm + 5 mm.

7 Protection: A thick layer of clear transparent lacquer based on methacrylates or cellulose butyrate, shall be applied on aluminium doors, windows and ventilators by the supplier to protect the surface from wet cement during installation. This lacquer coating shall be removed after installation is completed.

8 Measurement: All the aluminium sections including snap beading fixed in place shall be measured in running meter along the outer periphery of composite section.

9 Rate: The rate shall include the cost of all the materials, labours involved in all the operations.

12.2.20 Mild Steel Works for Doors & Windows:

1 Hot rolled steel sections for fabrication of steel doors, windows, ventilators and fixed lights shall conform to IS: 7452. Shapes weights and designations of hot rolled sections shall be as per IS: 7452.

2 Tolerance in thickness of the sections shall be + 0.2 mm.

3 The steel doors and windows shall be according to the specified sizes and design. The size of doors and windows shall be calculated, so as to allow 1.25 cm clearance on all the four sides of opening to allow for easy fitting of doors windows and ventilators into opening. The actual sizes of doors, windows and ventilators shall not vary by more than + 1.5 mm.

4 Frames:

4.1 Both the fixed and open-able frames shall be made of sections which have been cut to length and mitred. All frames shall be square and flat.

4.2 The corner of fixed and open-able frames shall be welded to form a solid fused welded joint conforming the requirements given below. The process of welding adopted shall be flush but-welding or can be any other process as agreed which shall fulfil the requirements given in Clause 6.1.1 of IS: 1038, metal arc welding or any other suitable method.

4.3 The section for glazing shall be tenoned and riveted into the frames and where they intersect the vertical tie shall be broached and horizontal tee threads through it, and the intersection closed by hydraulic pressure.

5 Welded Joints: When two opposite corners of the frame are cut, paint removed and inspected, the joint shall conform to the following:

5.1 welds should have been made all along the place of meeting the members and tack welding shall not be permitted.

5.2 welds should have been properly grounded and

5.3 complete cross section of the corner shall be checked up to see that the joint is completely solid and there are no cavities visible.

6 Hinges:

6.1 For fixing steel hinges, slots shall be cut in the fixed frame and hinges inserted inside and welded to the frame at the back. The hinges shall be of projecting type with thickness not less than 3.15 mm and length not less than 65 mm and width not more than 25 mm.

6.2 Non projecting type hinges may also be allowed if approved by the Architect.

6.3 The diameter of hinge pins shall not be less than 6 mm. The hinge pin and washer shall be of galvanised steel or aluminium alloy of suitable thickness.

7 Handle:

7.1 The handle of side hung shutters shall be pressed brass, cast brass, aluminium or steel protected against rusting and shall be mounted on a steel plate.

7.2 Thickness of handle shall not be less than 3 mm in case of steel or brass and 3.5 mm in case of aluminium.

7.3 The handle plate shall be welded, screwed and / or rivetted to the opening frame in such a manner that it should be fixed before the shutter is glazed and should not be easily removable after glazing.

7.4 The handle shall have a two point nose which shall engage with a brass or aluminium alloy striking plate on the fixed frame in a slightly opened position as well as closed position. The boss of handle shall incorporate a friction device to prevent the handle from dropping under its own weight and the assembly shall be so designed that the rotation of the handle may not cause it to unscrew from the pin.

8 Stay:

8.1 The windows shall be fitted with peg stays which shall be either of black oxidised steel, pressed or cast brass or as specified, 300 mm long or as specified with steel peg and locking brackets.

- 8.2 The pegs stay shall have three holes to open the side hung casement in three different angles.
- 8.3 The peg stay shall be of minimum thickness 2 mm in case of brass or aluminium and 1.25 mm in case of steel.
- 9 Glazing Works:
- 9.1 The glass panes shall have square corners and straight edges. The glass panes shall be so cut that it fits slightly loose in the frames.
- 9.2 In doors, windows and clerestory windows of bath, WC and lavatories frosted glass panes shall be used which shall weight not less than 10.00 kg/m².
- 9.3 Glazing shall be provided on the outside of the frame unless otherwise specified.
- 9.4 Putty of approved make conforming to IS: 419 shall be used for fixing glass panes. Putty shall be applied between glass panes and glazing bars. Putty shall then be applied over the glass pane, which shall stop 2 to 3 mm from the sight line of the back rebate to enable the painting to be done up to the sight line to seal the edge of the putty to the glass. The oozed out putty shall be cleaned and from putty cut to straight line.
- 9.5 Quantity of putty shall not be less than 185 g/m of glass perimeter.
- 9.6 Putty shall be painted within 2 to 3 weeks, after glazing is fixed to avoid its cracking.
- 10 Finishing:
- 10.1 All steel surfaces shall be thoroughly cleaned of rust, scale and dirt.
- 10.2 A priming coat of approved steel primer ie red oxide / zinc chromate primer conforming to IS: 2074 shall be given.
- 10.3 Final finishing coat shall be given to the doors, windows and ventilators after they are erected and fixed in final position.
- 11 Measurement:
- 11.1 The weight of finished section door / windows of different sizes, inclusive of all fixed / welded fittings ie hinges pivots, lugs, brackets striking plates etc shall be worked out before fixing of windows (exclusive of weight of glass panes, glazing clips, putty etc).
- 11.2 Sectional weight of steel members only shall be measured without weight of glass panes etc.
- 11.3 Any loose fittings such as casement stays / fasteners etc shall be enumerated and paid for separately.
- 12 Rates:
- 12.1 Rate shall include the cost of materials and labour involved in all the operations described above excluding two coats of painting but including cost of glazing and priming including the cost of projecting hinges in case of side hung doors / windows, plain hinges in case of top / bottom hung windows / ventilators and pivots for centre hung windows/ ventilators.
- 12.2 Metal beading and other fittings such as peg stay and casement window fasteners etc shall be enumerated and paid for separately.

12.2.21 Cast-in-situ Terrazzo Works in floor:

- 1 Under Layer: Cement concrete of specified mix shall be used as per the specifications given in Clause No: 38. The panels shall be of uniform size, not exceeding 2.0 m² in area or 2 m in length for inside situations. In exposed situations, the length of any side of the panel shall not be more than 1.25 m. Cement slurry @ 2.00 kg/m² shall be applied before laying of under layer over the base cement concrete / RCC base.
- 2 Fixing of Strips: 4 mm thick glass strips, unless otherwise specified, shall be fixed with their top at proper level to required slope.
- 3 Top Layer:
- 3.1 Mortar for terrazzo: The mix for terrazzo shall consist of cement with or without pigment, marble powder, marble aggregate (marble chips) and water. The cement and marble powder shall be mixed in the proportion of three parts of cement to one part marble powder by weight. The cement to be used shall be ordinary grey cement, white cement, cement with admixture of colouring matter of approved quality.
- 3.2 Marble Chips: The marble chip shall in colours as specified by the Bank / Architect. It shall be hard, sound, dense and homogeneous in texture with crystalline and coarse grains. It shall be uniform in colour and free from stains, cracks, decay and weathering.
- 3.3 The terrazzo topping shall be laid while the under layer is still plastic, but has hardened sufficiently to prevent cement from rising to the surface. The surface of the top layer shall be trowelled over, pressed and brought true to required level by a straight edge and steel floats in such a manner that the maximum amount of marble chips come up and are spread uniformly over the surface.
- 4 Curing, Polishing & Finishing:
- 4.1 The surface shall be left dry for air-curing for a duration of 12 to 18 hours depending on atmospheric temperature conditions. It shall then be cured by allowing water to stand in pools over it for a period of not less than 4 days.
- 4.2 The grinding and polishing may be commenced not before 2 days from the time of completion of laying for manual grinding and not before 7 days for machine grinding.
- 4.3 For polishing by machines, the surface shall be watered and ground evenly with machine fitted with special rapid cutting grit blocks (carborundum stone) of coarse grade (No: 60) till the marble chips are evenly exposed and the floor is smooth.

4.4 After the first grinding, the surface shall be thoroughly washed to remove all grinding mud and covered with a grout of cement and colouring matter in same mix and proportion as the topping in order to fill any pin holes that appear.

4.5 The surface shall be allowed to dry for 24 hours and wet cured for 4 days and then rubbed with machine fitted with fine grit blocks (No: 120). Curing shall be done by ponding of water between panels formed with fine sand. The surface is cleaned and repaired as before and allowed to cure again for 3 to 5 days.

4.6 Finally the third grinding shall be done with machine fitted with mere fine grade grit blocks (No: 320) to get even and smooth surface without pin holes. The finished surface should show the marble chips evenly exposed.

4.7 Where use of machine for polishing is not feasible or possible, rubbing and polishing shall be done by hand, in the same manner as specified for machine polishing except that carborundum stone of coarse grade (No: 60) shall be used for the first rubbing, stone of medium grade (No: 80) for second rubbing and stone of fine grade (No: 120) for final rubbing polishing.

4.8 After the final polish either by machine or by hand, oxalic acid shall be dusted over the surface @ 33 g/m² sprinkled with water and rubbed hard with a pad of woollen rags. The following day, the floor shall be wiped with a moist rag and dried with a soft cloth and finished clean.

5 Measurement:

5.1 Measurement shall be in square metre.

5.2 No deduction shall be made, nor extra paid for voids not exceeding 0.20 m². Deduction for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 m². Nothing extra shall be paid for laying the floor at different levels in the same room or courtyard.

5.3 Terrazzo flooring laid as floor borders, margins and similar bands up to 30 cm width and on staircase treads shall be measured together with the main floor area and no extra shall be paid for such works.

6 Rate:

6.1 The rate shall include the cost of all materials and labour involved in all the operations described above including cleaning of surface of RCC slab or base concrete and application of cement slurry but shall not include the cost of base concrete and cost of providing and fixing strips of glass used for making panels, which shall be paid for separately.

12.2.22 Cast-in-situ Terrazzo Works in Skirting:

1 Undercoat: The under coat of skirting shall be of cement plaster of the thickness and mix described in Clause No: 38 shall apply. The undercoat shall have top truly horizontal and joints truly vertical and finished rough with a scratching tool to form a key for the top coat.

2 Thickness: Average thickness of the under coat shall not be less than 6 mm and minimum thickness over any portion of the surface shall not be less than 4 mm. The thickness of top coat shall not be less than the thickness specified.

3 Top layer: The top layer shall be as per the specifications in Clause No: 42(42).

4 Measurement:

4.1 Measurement shall be in square metre.

4.2 Length shall be measured as finished length of skirting and the height shall be taken from the finished floor level.

5 Rate: The rate shall include the cost of all materials and labour involved in all the operations described above.

12.2.23 Ceramic Tile / Vitrified Tile Work with Cement Mortar / Tile Adhesive:

1 Preparation of base:

1.1 Base concrete or the RCC slab on which the tiles are to be laid shall be cleaned, wetted and mopped when cement mortar is used as base.

1.2 If cement-based high polymer modified quick-set water-based adhesive is used then the old flooring shall be thoroughly cleaned and checked for undulations, if any shall be rectified with cement mortar 1:3 (1 cement: 3 coarse sand). Old cement concrete surface shall be hacked and cleaned off to have proper bond with the old surface.

2 Laying with cement mortar:

2.1 Base concrete or the RCC slab on which the tiles are to be laid shall be cleaned, wetted and mopped. The bedding for the tile shall be with cement mortar 1:4 (1 cement : 4 coarse sand) or as specified.

2.2 The average thickness of the bedding shall be 20 mm or as specified while the thickness under any portion of the tiles shall not be less than 10 mm.

2.3 The base shall be hardened reasonably before tiles are fixed true to level by the application of cement slurry prepared with water by adding cement @ 3.3 kg/m² with the help of wooden mallet.

3 Laying with tile adhesive:

3.1 High polymer modified quick set tile adhesive (conforming to IS: 15477) shall be thoroughly mixed with water and a paste of zero slump shall be prepared so that it can be used within 1.5 to 2 hours. It shall be spread over an area not more than one square metre at one time.

3.2 Average thickness of adhesive shall be 3 mm The adhesive so spread shall be combed using suitable trowel.

3.3 Tiles shall be pressed firmly in to the position with slight twisting action checking it simultaneously to ensure good contact gently being tapped with wooden mallet till it is properly backed with adjoining tiles. The tiles shall be fixed within 20 minutes of application of adhesive. The surplus adhesive from the joints, surface of the tiles shall be immediately cleaned.

4 Tiles which are fixed in the floor adjoining the wall shall enter not less than 10 mm under the plaster, skirting or dado.

5 Pointing & Finishing:

5.1 The joints shall be cleaned off the grey cement slurry with wire / coir brush or trowel to a depth of 2 mm to 3 mm and all dust and loose mortar removed.

5.2 Joints shall then be flush pointed with white cement added with pigment if required to match the colour of tiles.

5.3 The floor shall then be kept wet for 7 (seven) days. After curing, the surface shall be washed and finished clean.

5.4 The finished floor shall not sound hollow when tapped with a wooden mallet.

6 Measurement:

6.1 Measurement shall be in square metre.

6.2 No deduction shall be made, nor extra paid for voids not exceeding 0.20 m². Deduction for ends of dissimilar materials or other articles embedded shall not be made for areas not exceeding 0.10 m². Nothing extra shall be paid for laying the floor at different levels in the same room or courtyard.

7 Rate: The rate shall include the cost of all materials and labour involved in all the operations described above including cleaning of surface of RCC slab or base concrete and application of cement slurry

12.2.24 Rendering Works:

1 Preparation of Wood Surface:

1.1 The wood work to be painted shall be dry and free from moisture.

1.2 The surface shall be thoroughly cleaned. All unevenness shall be rubbed down smooth with sand paper and shall be well dusted. Knots, if any shall be covered with preparation of red lead made by grinding red lead in water and mixing with strong glue sized and used hot. Appropriate filler material conforming to IS: 345 with same shade as Paint shall be used where specified. The surface treated for knotting shall be dry before Paint is applied. After obtaining approval of Architect for wood work, the priming coat shall be applied before the wood work is fixed in position.

1.3 After the priming coat is applied, the holes and indentation on the surface shall be stopped with glazier's putty or wood putty. Stopping shall not be done before the priming coat is applied as the wood will absorb the oil in stopping and the latter is therefore liable to crack.

2 Preparation of Steel Surface:

2.1 All rust and scales shall be removed by scrapping or by brushing with steel wire brushes. Hard skin of oxide formed on the surface of wrought iron during rolling which becomes loose by rusting, shall be removed.

2.2 All dust and dirt shall be thoroughly wiped away from the surface.

2.3 If the surface is wet, it shall be dried before priming coat is undertaken.

3 Preparation of Plastered Surface:

3.1 The surface shall ordinarily not be painted until it has dried completely.

3.2 Trial patches of primer shall be laid at intervals and where drying is satisfactory, painting shall then be taken in hand. Before primer is applied, holes and undulations, shall be filled up with plaster of Paris / cement putty and rubbed smooth.

4 Primer:

4.1 The primer for wood work, iron work or plastered surface shall be as specified in the description of item.

4.2 Primer for plaster / wood work / iron and steel / aluminium surfaces shall be as specified below:

4.2.1 Woodwork – Pink variety conforming IS: 3536

4.2.2 Iron, steel etc – Red oxide zinc chromate conforming IS: 2074

4.2.3 Concrete work / plastered surface – Cement primer conforming IS: 109

4.3 The primer shall be ready mixed primer of approved brand and manufacture.

4.4 Where primer for wood work is specified to be mixed at site, it shall be prepared from a mixture of red lead, white lead and double boiled linseed oil in the ratio of 0.7 kg : 0.7 kg : 1 litre.

4.5 Where primer for steel work is specified to be mixed at site, it shall be prepared from a mixture of red lead, raw linseed oil and turpentine in the ratio of 2.8 kg : 1 litre : 1 litre.

4.6 Mineral turpentine ie petroleum distillate which has the same rate of evaporation as vegetable turpentine (distillate product of oleoresin of conifers) shall be used. It shall have no grease or other residue when allowed to evaporate. It shall conform to IS: 533.

4.7 All the above materials shall be of approved manufacture and brought to site in their original packing in sealed

condition.

4.8 The primer shall be applied with brushes, worked well into the surface and spread even and smooth. The painting shall be done by crossing and laying off.

5 White Wash:

5.1 Surface Preparation: Before new work is white washed, the surface shall be thoroughly brushed free from mortar droppings and foreign matter.

5.2 Preparation of Lime: The lime wash shall be prepared from fresh stone white lime. The lime shall be thoroughly slaked on the spot, mixed and stirred with sufficient water to make a thin cream. This shall be allowed to stand for a period of 24 hours and then shall be screened through a clean coarse cloth. 40 g of gum dissolved in hot water, shall be added to each 10 dm³ of the cream. The approximate quantity of water to be added in making the cream will be 5 litres of water to 1.0 kg of lime. Indigo up to 3.0 g/kg of lime dissolved in water, shall then be added and stirred well. Water shall then be added at the rate of about 5.0 l/kg of lime to produce a milky solution.

5.3 Application:

5.3.1 The white wash shall be applied with brushes to the specified number of coats. The operation for each coat shall consist of a stroke of the brush given from the top downwards, another from the bottom upwards over the first stroke, and similarly one stroke horizontally from the right and another from the left before it dries.

5.3.2 Each coat shall be allowed to dry before the next one is applied. Further each coat shall be inspected and approved by the Bank / Architect before the subsequent coat is applied. No portion of the surface shall be left out initially to be patched up later on.

5.3.3 For new work, three or more coats shall be applied till the surface presents a smooth and uniform finish through which the plaster does not show. The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed.

5.3.4 For old work, after the surface has been prepared and a coat of white wash shall be applied over the patches and repairs. Then a single coat or two or more coats of white wash as stipulated in the description of the item shall be applied over the entire surface. The white washed surface should present a uniform finish through which the plaster patches do not appear.

5.3.5 The washing on ceiling should be done prior to that on walls.

5.4 Protective Measures: Doors, windows, floors, articles of furniture etc and such other parts of the building not to be white washed, shall be protected from being splashed upon. Splashing and dropping, if any shall be removed by the contractor at his own cost and the surfaces cleaned. Damages, if any, to furniture or fittings and fixtures shall be recoverable from the Contractor.

6 Synthetic Enamel Paint:

6.1 Synthetic Enamel Paint, conforming to IS: 2933, of approved brand and manufacture and of the required colour shall be used for the top coat and an undercoat of ordinary paint of shade to match the top coat as recommended by the same manufacturer as far the top coat shall be used.

6.2 Under Coat : One coat of the specified ordinary Paint of shade suited to the shade of the top coat, shall be applied and allowed to dry overnight. It shall be rubbed next day with the finest grade of wet abrasive paper to ensure a smooth and even surface, free from brush marks and all loose particles dusted off.

6.3 Top Coat : Top coats of synthetic enamel Paint of desired shade shall be applied after the undercoat is thoroughly dry. Additional finishing coats shall be applied if found necessary to ensure properly uniform glossy surface.

7 Plastic Emulsion Paint:

7.1 The plastic emulsion Paint is not suitable for application on external, wood and iron surface and surfaces which are liable to heavy condensation. These paints are to be used on internal surfaces except wooden and steel.

7.2 Plastic Emulsion Paint as per IS: 5411 of approved brand and manufacture and of the required shade shall be used.

7.3 The number of coats shall be as stipulated in the item.

7.4 The paint will be applied in the usual manner with brush, spray or roller. The paint dries by evaporation of the water content and as soon as the water has evaporated the film gets hard and the next coat can be applied. The time of drying varies from one hour on absorbent surfaces to 2 to 3 hours on non-absorbent surfaces.

7.5 The thinning of emulsion is to be done with water and not with turpentine. Thinning with water will be particularly required for the under coat which is applied on the absorbent surface. The quantity of water to be added shall be as per manufacturer's instructions.

7.6 The surface on finishing shall present a flat velvety smooth finish. If necessary more coats will be applied till the surface presents a uniform appearance.

7.7 Old brushes if they are to be used with emulsion paints, should be completely dried of turpentine or oil Paints by washing in warm soap water. Brushes should 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.

7.8 In the preparation of wall for plastic emulsion painting, no oil base putties shall be used in filling cracks, holes etc

7.9 Splashes on floors etc shall be cleaned out without delay as they will be difficult to remove after hardening.

8 Measurement:

8.1 All measurements shall be in square metre.

8.2 Areas to be measured shall be done flat instead of girthed.

8.3 For door and window, area of the opening in wall to be considered and no separate payment for frames shall be made. For grills or grating the area shall be that bounded by the outer frame.

8.4 Table showing the factor for multiplication for areas of items in Sub-clause No: 45 above shall be as followings:

SL NO	SURFACE TO BE PAINTED	MULTIPLYING FACTOR
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		ONE SIDE ONLY	BOTH SIDES
1	Fully glazed timber doors, windows etc	0.80	1.60
2	Fully panelled timber doors, windows etc	1.30	2.60
3	Fully louvred / fixed timber doors, windows etc	1.80	3.60
4	2/3 panelled and 1/3 glazed timber doors, windows etc	1.14	2.28
5	1/2 panelled and 1/2 glazed timber doors, windows etc	1.00	2.00
6	1/3 panelled and 2/3 glazed timber doors, windows etc	0.75	1.50
7	1/3 panelled and 2/3 louvred timber doors, windows etc	1.33	2.66
8	1/2 panelled and 1/2 louvred timber doors, windows etc	1.55	3.10
9	Full glazed steel windows	0.50	1.00
10	Partly panelled & partly glazed steel doors, windows etc	0.80	1.60
11	Plain sheet steel doors, windows etc	1.10	2.20
12	Collapsible gates	-	1.50
13	Grills, gratings, railings, balustrades etc	-	1.00
14	CGI sheet	1.25	2.50
15	CI sheet roof	1.05	2.10
16	CI sheet wall with supporting framework	1.14	2.28

9 Rate: The rate for all the above works shall include all materials, labour, tools and machineries, hire charges for scaffolding etc.

12.3 **Plumbing & Sanitary Works:**

12.3.1 **Water Supply:**

1 General:

1.1 All water supply installation work shall be carried out through Licensed Plumbers.

1.2 Any damage caused to the building, or to electric, sanitary water supply or other installations etc therein either due to negligence on the part of the Contractor, or due to actual requirements of the work, shall be made good and the building or the installations shall be restored to its original condition by the Contractor. Nothing extra shall be paid for it, except where otherwise specified.

1.3 No piping shall be laid or fixed so as to pass into, through or adjoining any sewer, scour outlet or drain or any manhole connected therewith nor through any ash pit or manure-pit or any material of such nature that can cause undue deterioration of the pipe.

1.4 All pipe work shall be so designed, laid or fixed, and maintained so that it remains completely watertight, thereby avoiding wastage of water, damage to property and the risk of contamination of the water conveyed.

1.5 In designing and planning the layout of the pipe work, due attention shall be given to the maximum rate of discharge, required economy in labour and materials, protection against damage and corrosion and to avoidance of airlocks, noise transmission and unsightly arrangement.

1.6 To reduce frictional losses, piping shall be as smooth as possible inside. Methods of jointing shall be such as to avoid internal roughness and projection at the joints, whether of the jointing materials or otherwise.

1.7 Change in diameter and in direction shall preferably be gradual rather than abrupt to avoid undue loss of head. No bend or curve in piping shall be made so as to materially reduce or alter the cross-section.

1.8 Where the service pipe is of diameter less than 50 mm the stop valves shall be of the screw down type and shall have loose washer plates to act as non-return valves. Other stop valves in the service line may be of the gate type.

1.9 In flats and tenements supplied by a common service pipe a stop valve shall be fixed to control the each branch separately.

1.10 In flats and tenements supplied by a common service pipe a stop valve shall be fixed to control the each branch separately.

1.11 When it is necessary for a pipe to pass through a wall or floor, a sleeve shall be fixed therein for insertion of the pipe and to allow freedom for expansion, contraction and other movement.

1.12 No service pipe shall be connected to any water closet or urinal. All such supplies shall be from flushing cisterns which shall have supply from storage tank.

1.13 No service or supply pipe shall be connected directly to any hot-water system or to any apparatus used for heating other than through a feed cistern thereof.

2 Materials:

2.1 The standard size of brass or gun metal fittings shall be designated by the nominal bore of the pipe outlet to which

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the fittings are attached. A sample of each kind of fittings shall be got approved from the Architect and all supplies made according to the approved samples.

2.2 Cast Iron (CI) Fittings:

2.2.1 All cast iron fittings shall be sound and free from laps, blow holes and pitting. Both internal and external surfaces shall be clean, smooth and free from sand etc.

2.2.2 Burning, plugging, stopping or patching of the casting shall not be permissible.

2.2.3 The bodies, bonnets, spindles and other parts shall be truly machined so that when assembled the parts shall be axial, parallel and cylindrical with surfaces smoothly finished.

2.2.4 The area of the water way of the fittings shall not be less than area of the nominal bore.

2.2.5 Chromium plating wherever specified shall be of 0.3 micron. The chromium shall never be deposited on brass unless a heavy coating of nickel is interposed.

2.2.6 In the case of iron a thick coat of copper shall first be applied, then one of nickel and finally the chromium. In finish and appearance the plated articles when inspected shall be free from plating defects such as blisters, pits roughness and non-plated areas and shall not be stained or discoloured.

2.2.7 Before fitting is plated, the washer plate shall be removed from the fittings, the gland packing shall be protected from the plating solution.

2.3 Taps & Valves:

2.3.1 All taps and bibs shall be of specified size and shall be of screw down type and shall conform to IS: 781.

2.3.2 The closing device shall work by means of disc carrying a renewable non-metallic washer which shuts against water pressure on a seating at right angles to the axis of the threaded spindle which operates it.

2.3.3 The handle shall be either crutch or butterfly type securely fixed to the spindle. Valve shall be of the loose leather seated pattern.

2.3.4 The cocks (taps) shall open in anti-clock wise direction.

2.4 Pig Lead:

2.4.1 Pig lead shall be of uniform quality, clean and free from foreign materials.

2.4.2 It shall be of uniform softness and capable of being easily caulked or driven. It shall conform to IS: 782 for caulking lead in all respects.

2.5 Lead Wool:

2.5.1 Lead wool shall conform to IS: 782 in all respects.

2.5.2 Lead wool shall consist of fine strands or plated ribbons of lead.

2.5.3 The cross-section of the individual strands shall be flat. The dimensions in the sectional plane shall not be less than 0.13 mm and not more than 0.90 mm and the rope shall be supplied in minimum lengths of two metres and the maximum length in any one package shall be such that the package does not weigh more than 50 kg.

2.6 Non-Return Valve:

2.6.1 The non-return valve shall be of gun metal and shall be of horizontal or vertical flow type as specified.

2.6.2 The valve shall be of quality approved by the Architect and shall generally conform to IS: 778.

2.7 Pipes & Specials:

2.7.1 CI Pipes & Specials:

2.7.1.1 The cast iron pipes shall conform to IS: 1536.

2.7.1.2 The specials shall conform to IS: 1538.

2.7.2 Galvanised Iron (GI) Pipes & Specials:

2.7.2.1 The pipes (tubes) shall be galvanised mild steel hot finished seamless (HFS) or welded (ERW) HRIW or HFW screwed and socketed conforming to the requirements of IS: 1239 Part – I for medium grade.

2.7.2.2 They shall be of the diameter (nominal bore) specified in the description of the item, the sockets shall be designated by the respective nominal bores of the pipes for which they are intended.

2.7.2.3 Galvanising shall conform to IS: 4736.

2.7.2.4 All screwed tubes and sockets shall have pipe threads conforming to the requirements of IS: 554. Screwed tubes shall have taper threads while the sockets shall have parallel threads.

2.7.2.5 All tubes shall withstand a test pressure of 50 kg/cm² without showing defects of any kind.

2.7.2.6 The fittings shall be of mild steel tubular or wrought steel fittings conforming to IS: 1239 (Part – 2) or as specified and shall be designated by the respective nominal bores of the pipes for which they are intended.

2.7.3 Chlorinated Polyvinyl Chloride (CPVC) Pipes:

2.7.3.1 CPVC pipes & fittings used in hot & cold potable water distribution system shall conform to requirement of IS: 15778.

2.7.3.2 The internal and external surfaces of the pipe shall be smooth, clean and free from grooving and other defects. The pipes shall not have any detrimental effect on the composition of the water flowing through it.

2.7.3.3 If the length of a pipe is specified, the effective length shall not be less than that specified. The preferred effective length of pipes shall be 3.0, 5.0 or 6.0 m.

2.7.3.4 The ends of the pipes meant for solvent cementing shall be cleanly cut and shall be reasonably square to the axis of the pipe or may be chamfered at the plain end.

2.7.4 Shower Rose:

2.7.4.1 The shower rose shall be of chromium plated brass of specified diameter.

2.7.4.2 It shall have uniform perforations.

2.7.4.3 The inlet size shall be 15 mm or 20 mm as required.

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3 Laying & Jointing for External Works:

3.1 Storing:

3.1.1 The pipes and specials shall be handled with sufficient care to avoid damage to them. These shall be lined up on one side of the alignment of the trench, socket facing upgrade when line runs uphill and upstream when line runs on level ground.

3.1.2 Storage shall be done on firm, level and clean ground. Wedges shall be provided at the bottom layer to keep the stack stable.

3.2 Cutting:

3.2.1 Cutting of CI pipes may be necessary when pipes are to be laid in lengths shorter than the lengths supplied, such as while replacing accessories like tees, bends, etc. at fixed position in the pipe lines.

3.2.2 Where the GI pipes have to be out or rethreaded, the ends shall be carefully filed out so that no obstruction to bore is offered. The end of the pipes shall then be carefully threaded conforming to the requirements of IS: 554 with pipe dies and tapes in such a manner as will not result in slackness of joints when the two pieces are screwed together.

3.3 Trenches:

3.3.1 The trenches shall be so dug that the pipes may be laid to the required alignment and at required depth.

3.3.2 The bed of the trench, if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions, if any, shall be properly filled with earth and consolidated in 20 cm layers.

3.3.3 After the excavation of the trench is completed, hollows shall be cut at the required position to receive the socket of the pipes and these hollows shall be of sufficient depth to ensure that the barrels of the pipes shall rest throughout their entire length on the solid ground and that sufficient spaces left for jointing the underside of the pipe joint. These socket holes shall be refilled with sand after jointing the pipe.

3.3.4 Roots of trees within a distance of about 0.5 metre from the side of the pipe line shall be removed or killed.

3.3.5 The trench shall be kept free from water. Shoring and timbering shall be provided wherever required. Excavation below water table shall be done after dewatering the trenches.

3.4 Laying:

3.4.1 Where so directed, the pipes and specials may be laid on masonry or concrete pillars. The pipe laid on the level ground, shall be laid with socket facing the direction of flow of water.

3.4.2 The pipes shall rest continuously on the bottom of the trench.

3.5 Jointing:

3.5.1 Lead Caulked Joints with Pig Lead for CI Pipes: This type of lead caulking is generally done in providing joints in gas water and sewer lines wherever it is practicable to use cast lead caulking, but not in case of wet conditions.

3.5.2 Lead Caulked Joints with Lead Wool Yarn for CI Pipes: This type of lead caulking is generally done when it is inconvenient or dangerous to use molten lead for joints, for example in cases such as inverted joints or in wet trenches or in exceptional cases. In such cases the joints shall be made with lead wool or yarn.

3.5.3 Jointing for GI Pipes:

3.5.3.1 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.

3.5.3.2 The end shall then be screwed in the socket, Tee etc with the pipe wrench. Care shall 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.

3.5.3.3 Burr from the joint shall be removed after screwing.

3.5.3.4 After laying, the open ends of the pipes shall be temporarily plugged to prevent access of water, soil or any other foreign matter.

3.6 Painting: The pipes shall be painted with two coats of anti-corrosive bituminous paint of approved quality.

3.7 Back-filling:

3.7.1 The initial back fill material used shall be free of large stones and dry lumps.

3.7.2 The initial back fill shall be placed evenly in a layer of about 100 mm thick. This shall be properly consolidated and this shall be continued till there is a cushion of at least 300 mm of cover over the pipe.

3.8 Tests: After a new pipe has been laid, jointed and back filled (or any valved section thereof), it shall be subjected to the following two tests:

3.8.1 Pressure test at a pressure of at least double the maximum working pressure-pipe and joints shall be absolutely water tight under the test.

3.8.2 Leakage test (to be conducted after the satisfactory completion of the pressure test) at a pressure to be specified by the authority for duration of two hours.

3.9 Measurement: The net length of pipes as laid or fixed, shall be measured in the running metres.

3.10 Rate: The rate shall include the cost of materials and labour involved in all the operations.

4 Laying & Jointing for Internal Works:

4.1 GI Pipes:

4.1.1 For internal work the galvanised 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 1.5 cm clear of the wall.

4.1.2 When it is found necessary to conceal the pipes, chasing may be adopted or pipes fixed in the ducts or recess etc., provided there is sufficient space to work on the pipes with the usual tools.

4.1.3 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.

4.1.4 Where directed by the Architect, a MS tube sleeve shall be fixed at a place the pipe is passing through a wall or floor for reception of the pipe and to allow freedom for expansion and contraction and other movements.

4.1.5 In case the pipe is embedded in walls or floors it should be painted with anti-corrosive bituminous paints of approved quality.

4.1.6 The pipe shall not come in contact with lime mortar or lime concrete as the pipe is affected by time.

4.1.7 Under the floors the pipes shall be laid in layer of sand filling as done under concrete floors.

4.1.8 All pipes and fittings shall be fixed truly vertical and horizontal unless unavoidable.

4.1.9 The pipes shall be fixed to walls with standard pattern holder bat clamps of required shape and size so as to fit tightly on the pipes when tightened with screwed bolts, these clamps shall be embedded in brick work in cement mortar 1:3 (1 cement: 3 coarse sand), and shall be spaced at regular intervals in straight lengths.

4.2 CPVC Pipes:

4.2.1 Pipes can be concealed in chases. The pipes and fitting are to be pressure tested prior to concealing the chases.

4.2.2 To maintain alignment of CP fittings while joining, all alignment of fittings and pipe shall be done correctly.

4.2.3 All pipes exposed to sunlight shall be painted with a water based acrylic paint emulsion to enhance UV protection.

4.3 Testing:

4.3.1 All water supply systems shall be tested to hydrostatic pressure test.

4.3.2 System may be tested in sections and such section shall be entirely checked on completion of connection to the overhead tank or pumping system or mains.

4.4 Measurement: The net length of pipes as laid or fixed shall be measured in running meters for the finished work, which shall include pipe, specials and fittings.

12.3.2 Drainage:

5 General:

5.1 In designing a drainage system for building, the aim shall be to provide a self cleansing conduit for the conveyance of soil, waste, surface or sub-surface waters and for the removal of such wastes speedily and efficiently to a sewer or other outlet, without risk of nuisance and hazard to health.

5.2 Gradients shall be sufficient to prevent these temporary accumulations building up and blocking the drains.

5.3 Normally, the sewer shall be designed for discharging three times the dry weather flow flowing half-full with a minimum self cleansing velocity of 0.75 m/s.

6 Materials:

6.1 Glazed Stone Ware (SW) Pipes & Specials:

6.1.1 All pipes with spigot and socket ends and fittings shall conform to class SP1 of IS: 651.

6.1.2 These shall be sound, free from visible defects such as fire cracks or hair cracks. The glaze of the pipes shall be free from crazing.

6.1.3 The pipes shall give a sharp clear tone when struck with a light hammer. There shall be no broken blisters.

6.1.4 The length of pipes shall be 60, 75, 90 cm exclusive of the internal depth of the socket.

6.2 SW Gully Trap:

6.2.1 Gully traps shall conform to IS: 651.

6.2.2 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.

6.2.3 They shall give a sharp clear tone when struck with light hammer.

6.2.4 Each gully trap shall have one CI grating of square size corresponding to the dimensions of inlet of gully trap.

6.2.5 It will also have a water tight CI cover with frame inside dimensions 300 mm x 300 mm the cover weighing not less than 4.50 kg and the frame not less than 2.70 kg.

6.2.6 The grating, cover and frame shall be of sound and good casting and shall have truly square machined seating faces.

6.3 Laying & Jointing:

6.3.1 The trench shall be so dug that the pipe can be laid to the required alignment and at the required depth.

6.3.2 The trench shall be so shored and drained that the workmen may work therein safely and efficiently.

6.3.3 The excavation shall be carried out with manual labour or with suitable mechanical equipment as approved by the Architect.

12.3.3 Sanitary Fittings:

7 Appliances & Fittings:

7.1 Water Closet (WC): Water closets shall be of white vitreous china conforming to IS: 2556 (Part – I) and 2556 (Part-2), as specified and shall be of “Wash down type”.

7.2 PVC Flushing Cisterns: Plastic flushing cisterns for WC and Urinals shall be as per IS: 7231.

7.3 Wash Basin:

7.3.1 Wash basins shall be of white vitreous china conforming to IS: 2556 (Part – I) and IS: 2556 (Part – IV).

7.3.2 The waste fittings shall be of nickel chromium plated brass, with thickness of plating not less than Service Grade 2 of IS: 4827 which is capable of receiving polish and will not easily scale off, conform in all respect to IS: 2963.

7.4 Pedestal for Wash Basin:

7.4.1 White glazed pedestals for wash basins, where specified shall be provided.

7.4.2 The quality of the glazing of the pedestal shall be exactly the same as that of the basin along with which it is to be installed.

7.4.3 It shall be completely recessed at the back to accommodate supply and waste pipes and fittings and shall be capable of supporting the basin rigidly and adequately and shall be so designed as to make the height from the floor to top of the rim of basin 75 cm to 80 cm.

7.5 Shelf: Glass shelf shall consist of an assembly of glass shelf, with anodised aluminium angle frame to support the glass shelf. The shelf shall be of glass of best quality with edges rounded off, and shall be free from flaws specks or bubbles. The size of the shelf shall be 60 cm x 12 cm unless otherwise specified and thickness not less than 5.5 mm. The shelf shall have CP brass brackets which shall be fixed with CP brass screws to Rawl plugs firmly embedded in the walls.

7.6 Mirror: The mirror shall be of superior glass with edges rounded off or bevelled, as specified. It shall be free from flaws, specks or bubbles. The size of the mirror shall be 60 cm x 45 cm unless specified otherwise and its thickness shall not be less than 5.5 mm. It shall be uniformly silver plated at the back and shall be free from silvering defects. Silvering shall have a protective uniform covering of red lead paint. Where bevelled edge mirrors of 5.5 mm thickness are not available, fancy looking mirrors with PVC beading / border or aluminium beading or stainless steel beading / border based on manufacturer's specifications be provided nothing extra shall be paid on this account. Backing of mirrors shall be provided with environmentally friendly material other than asbestos cement sheet.

7.7 Pillar Tap:

7.7.1 Pillar Taps Pillar taps shall be chromium plated brass and shall conform to IS: 1795.

7.7.2 The nominal sizes of the pillar tap shall be 15 mm or 20 mm as specified. The nominal size shall be designated by the nominal bore of the pipe outlet to which the tap is to be fitted.

7.7.3 Casting shall be sound and free from laps, blow hole and pitting. External and internal surfaces shall be clean, smooth and free from sand and be neatly dressed. The body, bonnet and other parts shall be machined true so that when assembled, the parts shall be axial, parallel and cylindrical with surfaces smoothly finished.

7.7.4 Pillar taps shall be nickel chromium plated and thickness of coating shall not be less than service grade No: 2 of IS: 4827 and plating shall be capable of taking high polish which shall not easily tarnish or scale.

7.7.5 Every pillar tap, complete with its component parts shall withstand an internally applied hydraulic pressure of 20 kg/cm² maintained for a period of 2 (two) minutes during which period it shall neither leak nor sweat.

7.8 Plastic Seat & Cover for WC: The seat and cover shall be of thermosetting or thermoplastic conforming to IS: 2548 as specified. Unless otherwise specified these shall be of closed pattern.

7.9 SS Sink: Stainless steel kitchen sink shall be of sizes as specified and shall be conforming to IS: 13983.

7.10 Towel Rail: The towel rail shall be of CP on brass as specified and as per direction of the Architect.

7.11 Toilet Paper Holder: The toilet paper holder shall be of CP brass or vitreous china as specified and of size and design as approved by the Bank / Architect. It shall be fixed in position by means of CP brass screws and warl plugs embedded in the wall.

8 Workmanship:

8.1 The work shall be carried out, complying in all respects with the requirements of relevant bye-laws of the local body in whose jurisdiction the work is situated.

8.2 Any damage caused to the building, or to electric, sanitary, water supply or other, installations etc therein, either due to negligence on the part of the Contractor, or due to actual requirements of the work, shall be made good and the building or the installation shall be restored to its original condition by the Contractor. Nothing extra shall be paid for such restoration works except where otherwise specified.

8.3 All exposed GI, CI or lead pipes and fittings shall be painted with approved quality of paint and shade as specified.

8.4 All sanitary and plumbing work shall be carried out through Licensed Plumbers.

8.5 On completion of the work the site shall be cleaned and all rubbish disposed off as directed by the Bank / Architect.

9 Measurement: All measurements shall be as specified in the Bill of Quantities.

10 Rate: The Rate shall be inclusive of all materials and labour with tools and machineries, unless otherwise specified.

12.4 Electrical Works:

12.4.1 Scope:

1 In general, the Contractor shall supply, store, erect, test and commission all the equipment's required for Electrical Installation.

2 The Contractor shall furnish all the materials, labour, tools and equipment's for the electrical work,

as specified and in the Bill of Quantities and Specifications hereinafter described.

12.4.2 Qualification of the Contractor:

3 The Contractor shall be a Licensed Electrical Contractor, possessing a valid Electrical Contractor's License in the state, employing licensed supervisors and skilled workers having valid permits as per the Regulation of Indian Electricity Rules and Local Electrical Inspector's requirements.

4 In case the Contractor does not have the licence then it should be clearly stated through which local Electrical Contractor they shall submit the test report and a copy of the valid licence of the Contractor be enclosed.

12.4.3 General Specifications:

5 The installation shall conform in all respects to IS: 732 – Code of Practice for Electrical Wiring Installation IS: 732 and National Electrical Code (NEC).

6 It shall be in conformity with the current IE Rules and Regulations and requirements of the local Electric Supply Authority in so far as these become applicable to the installation.

7 Wherever this specification calls for a higher standard of materials and / or workmanship than those required by any of the above regulations, these specifications shall take precedence over the said regulations and standards.

8 In general, the materials, equipments and workmanship not covered by the above, shall conform to the respective latest editions of IS codes.

12.4.4 Inspection & Approval by Local Authority:

9 On completion of this work, the Contractor, if required, shall obtain and deliver to the Bank the certificates of inspection and approval by electrical inspectorate of local authority.

10 The fees paid for inspection will be reimbursed on production of *challan* / receipt. The Contractor shall include in his rates all charges necessary for getting electrical installation approved which may include Sub-station, LT distribution, etc by the Chief Electrical Inspector to the state government or / and from any other authority required for this job.

12.4.5 Inspection of Materials:

11 The Architect / Bank shall have access to the Manufacturer's premises for inspection of any items of the tender for which the Contractor has made arrangement with Manufacturer / Suppliers.

12 All such inspection shall not need any prior intimation by the Bank / Architect.

12.4.6 Drawings:

13 General:

13.1 The Drawings, Specifications and Bills of Quantities shall be considered as a part of this Contract and any work or materials shown on the drawings and not called for in the specifications or vice-versa, shall be executed as if specifically called for in both.

13.2 The contract drawings indicate the extent and general arrangement of various equipment and wiring, etc and are essentially diagrammatic. The drawings indicate the point of termination of conduit runs and broadly suggest the routes to be followed.

13.3 The work shall be executed as per approved working drawings, subject to any minor changes, if found essential to co-ordinate installation of this work with other trades. All such changes shall be without any additional major cost to the Bank.

13.4 The data given in the documents and drawings are approximate and their complete accuracy is not guaranteed. The drawings and data furnished are meant for guidance and assistance to the Contractor. The exact dimension, location, distance and levels, etc, will be governed by the space conditions.

13.5 The Contractor shall examine all architectural, structural, plumbing and sanitary and air-conditioning drawings before starting the work and report to the Bank / Architect any discrepancy which in his opinion appear on them, and get the same clarified.

13.6 He shall not be entitled to any extras for omissions or defects in electrical drawings or when they conflict with other works.

14 Working Drawings & Shop Drawings:

14.1 The Contractor shall prepare and submit to the Bank / Architect for approval detailed working drawings and shop drawings of all switch boards, LT Panel, HT Panels, transformers, equipment, layout, cable layout, earthing, submission plans for electrical inspectorate, etc within 60 days of award of work.

15 As-built Drawings:

15.1 At the completion of the work and before issuance of certificate of virtual completion, the Contractor shall submit to the Bank / Architect layout drawings drawn on tracing film and approved scale

indicating the complete wiring as installed.

12.4.7 Supervision by the Contractor:

16 The Contractor shall employ a competent, licence, qualified full time Electrical Engineer / Supervisor to direct the work of electrical installations in accordance with the drawings and specifications. The Electrical Engineer / Supervisor shall be available at all times at times at the site to receive instructions from the Bank / Architect in any day to day activities throughout the duration of the contract.

17 The Electrical Engineer / Supervisor shall correlate the progress of the work in conjunction with all the relevant requirements of the supply authority.

18 The skilled workers employed for the work should have requisite qualifications and should possess competency certificate from the Electrical Inspectorate of local statutory authority.

12.4.8 Application / liaising to / With the Authority:

1. The Contractor, if required, shall be responsible for filing and follow up the application for electric supply to the project.

2. The Contractor shall carry out all the liaison work required for obtaining electric supply at site commencing from filing of application. This shall be deemed to be a part of the Contract.

12.4.9 Materials Specifications:

19 Medium Voltage Cables:

19.1 Medium voltage cables shall be aluminium conductor, PVC insulated, PVC sheathed and steel wire armoured or steel tape armoured construction.

19.2 Aluminium conductors up to 10 mm² may be solid, circular in cross section, and sizes above 10 mm² shall be stranded.

19.3 Sector shaped stranded conductors shall be used for sizes above 25 mm².

19.4 All cables shall conform to IS: 1554 (Part – I).

19.5 The cable shall be rated for a voltage of 650 V / 1100 V.

20 Medium Voltage Distribution Board:

20.1 Distribution Boards (DB) for power and light circuit distribution shall be factory built and shall be suitable for 415 V, 3P / 230 V SP supply as specified in BOQ.

20.2 DB shall conform to IS: 8623 (for factory built assemblies).

20.3 Makes of DB shall be as per Acceptable Material / Approved List or as specified by Bank / Architect.

20.4 DB shall be of cabinet design, totally enclosed and shall provide protection against ingress to IP 42 of IS: 2147. Only those types of DB which have been type tested and passed by a national laboratory for IP 42 shall be offered.

20.5 Components:

20.5.1 Miniature Circuit Breakers (MCB)

20.5.2 Earth Leakage Circuit Breakers (ELCB)

20.5.3 Bus Bars

20.5.4 Neutral links / bus

20.5.5 Earth Bus

20.6 Testing: DB shall be tested at factory as per IS: 8623 and original test certificate shall be furnished.

21 MCB:

21.1 MCB shall generally conform to IS: 8828.

21.2 The breaking capacity of MCB shall not be less than 6 kA

21.3 MCB shall suitable for snap fixing on a standard DIN rail.

21.4 MCB shall be suitable for operating under full load under ambient temperature conditions (ie from -10°C to 55°C in India).

21.5 MCB shall have terminals suitable for receiving aluminium cables of adequate cross sections (up to 32 A rating 16 mm² and 40 A / 50 A / 63 A 35 mm² cable).

21.6 Three phase MCB shall have common trip bar so that all the poles make and break simultaneously.

22 ELCB:

22.1 ELCB shall be used as incomers in DB wherever specially called for in the Bill of Quantities.

22.2 ELCB shall be suitable for incorporation in standard DB manufactured by the approved manufacturers.

22.3 ELCBS shall be of core balance type and shall not cause nuisance tripping.

22.4 ELCB shall be rated for 100 mA fault circuit tripping.

22.5 ELCB shall be provided with a test lamp and push button to test the healthiness of the circuit.

23 Bus-bar:

23.1 The bus bars shall be of copper and duly tinned or plated.

23.2 The bus bar rating shall be at least 100 A as per manufacturers design.

23.3 Single phase DB shall have bus-bars shall be solidly anchored with single pole (SP) MCB of specified ratings.

23.4 The bus bars shall be fully shrouded.

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- 23.5 The bus bars shall be able to accept SP, double pole (DP) or triple pole (TP) MCB.
- 23.6 Three phase DB shall have single piece bus bar and coupling link avoiding drilling and bolting of bus bars.
- 24 Medium Voltage Distribution System:
- 24.1 Medium voltage distribution system shall be applicable for wiring 3 phase, 4 wire 415 V, 50 Hz, AC supply and single phase, 2 wire 230 V, 50 HZ, AC supply.
- 24.2 The system shall be governed by the requirements of IS: 732 and IE Rules and NEC.
- 25 PVC Conduits & Accessories:
- 25.1 PVC conduits shall be screwed and shall conform to IS: 9537 (Part – I).
- 25.2 In general, conduits shall be of good quality with uniform wall thickness.
- 25.3 Conduit accessories such as round junction boxes, draw boxers etc shall be of good quality and shall generally in conformity with IS specifications. The fittings and accessories shall have internally tapped spouts.
- 25.4 Junction boxes / inspection boxes shall have suitable covers with screws.
- 26 Enclosure for Electrical Accessories:
- 26.1 Enclosure for electrical accessories such as switches, sockets, fan regulators, etc shall be mild steel conforming to IS: 5133 (Part – I).
- 26.2 The dimensions of the enclosures shall be as per clauses 3.1 to 6.3.1 of IS: 5133.
- 26.3 The wall thickness of MS enclosures shall be not less than 1.6 mm and wherever specially called for, galvanised sheet steel boxes shall be provided.
- 26.4 The enclosure boxes shall be provided with a minimum of four fixing lugs located conveniently for fixing the covers. All fixing lugs shall have tapped holes to take machined brass screws.
- 26.5 Sufficient number of knock outs of 38 mm / 32 mm / 25 mm / 20 mm diameter shall be provided for conduit entries.
- 26.6 Enclosures shall be sufficiently strong to resist mechanical damage under normal service conditions.
- 26.7 Provisions shall be made for bonding the enclosures to the earth.
- 26.8 The enclosures shall be adequately protected against rust and corrosion both inside and outside with suitable air drying paint.
- 26.9 The enclosures shall be provided with 3 mm thick Bakelite / Perspex cover for mounting switches, sockets, etc
- 26.10 Wherever different phase conductors are brought into the same enclosure, phase barriers shall be provided. Phase barriers shall be of MS of Hylam inserted in the box with slide-fit arrangement. Alternatively, boxes could be partitioned during construction.
- 27 Wiring Conductors:
- 27.1 All wiring conductors shall be flame retardant low smoke (FRLS) PVC insulated, standard copper conductors of 1100 V grade.
- 27.2 Wiring conductors shall conform in all respects to IS: 694 (latest edition).
- 27.3 Solid conductors may be used if specifically called for.
- 27.4 Wiring Conductor shall be supplied in red, black, yellow and blue colours for easy identification of wires in sealed coils of standard length. The wiring conductor shall bear manufacturer's trade mark, name, voltage grade and size etc.
- 28 Switches, Sockets & Accessories:
- 28.1 Light control switches shall be 5 A rating for controlling up to four light points and 16 A rating for more than four light points. Light control switches shall be of module type of poly carbonate with PVC moulded front plate and GI boxes design suitable for flush mounting for general lighting and, wherever specifically required, for surface mounting.
- 28.2 All sockets, 6A and 16A ratings, shall be module type flush mounting with control switches of the same rating as that of the sockets. All socket shall be of polycarbonate with pins made of brass alloy and plated with a noble metal. Sockets shall be mounted on PVC moulded front plate and GI boxes.
- 28.3 Industrial type sockets shall be provided wherever specifically called for and shall be totally metal clad with porcelain base incorporating the pins. Socket shall have 3 / 5 pins for single phase application and 4 / 5 pins and earth for 3 phase application. The sockets shall be provided with suitable metal clad plug top with suitable cable entry. Sockets shall have metal covers with chain. Industrial type sockets shall be provided with a suitable sheet steel housing made of 16 gauge with the sockets mounted in flush with cover of the housing.
- 28.4 Accessories for, light outlets such as lamp holders, ceiling roses, etc shall be in conformity with requirements of relevant IS specifications. Only approved make of accessories shall be supplied, if required.
- 29 Installation of Switches, Sockets & Accessories:
- 29.1 All the switches shall be wired on phase.
- 29.2 Connections shall be made only after testing the wires for continuity, cross phase etc.
- 29.3 Switches, sockets, fan regulator etc. shall be housed in proper GI boxes with PVC moulded front plate covers.
- 29.4 Regulators shall be fixed on adjustable MS flat straps inside the enclosure.
- 29.5 The arrangement of switches and sockets shall be neat and systematic, fixed to the enclosure in plumb, with counter sunk head.
- 29.6 For wall plug sockets, the conductors shall be terminated directly into the switches and sockets.
- 29.7 Before fixing, the Contractor shall obtain clearance from the Bank / Architect with regard to their proper locations. The enclosures of sockets / and 3rd pin of the sockets shall be connected to the ground through a proper sized earth continuity conductor (ECC) as laid out in Specifications and Bill of Quantities.
- 30 Luminaries:
- 30.1 All the materials used in the construction of luminaries shall be of such quality, design and construction that will provide adequate protection in normal use, against mechanical, electrical failures / faults and exposure to the risk of injury or electric shock and shall withstand the effect of exposure to atmosphere.
- 31 Fans:

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31.1 Ceiling Fans shall conform to IS: 374 (latest edition) and propeller type exhaust fan shall conform to IS: 2312 (latest edition).

31.2 The fan motor shall be a capacitor type motor with internal starter and external rotor pattern.

31.3 All ceiling fans shall be supplied with electronic stepped regulators for 5 speed operation.

12.4.10 Installations:

32 Surface Mounted Conduits:

32.1 Wherever, specifically called for, surface conduit system shall be adopted.

32.2 Conduits shall be run in square and symmetrical lines.

32.3 Before the conduits are installed the exact route shall be marked at site and approval of the Architect shall be obtained.

32.4 Conduits shall be fixed by saddles, secured to suitable raw plugs, at an interval of not more than 0.6 m.

32.5 Cut ends of conduits shall have no sharp edges nor any burrs left to avoid damage to the insulation of the conductors. The cut ends / edges shall be filed before installation.

32.6 All the conduit openings shall be properly plugged with PVC stoppers / bushes. Wherever conduits terminate into point control box, outlet box, distribution board, etc conduits shall be rigidly connected to the box / board with check nuts on either side of the entry to ensure proper electrical and mechanical continuity.

33 Concealed Conduits:

33.1 All the conduits before they are fixed in position within chase cut in walls / ceiling / floor.

33.2 The conduits shall be properly threaded and screwed into junction boxes, outlet boxes.

33.3 The conduits in ceiling slab shall be straight as far as possible to facilitate easy drawing of wires through them. Before conduits are laid in the ceiling the positions of outlet points, point control boxes, junction boxes shall be set-out clearly so as to minimise offset and bends.

33.4 Conduits recessed in walls shall be secured rigidly by means of steel hooks / staples at intervals as directed by the Architect. Before conduit is concealed in the walls, all chases, grooves shall be neatly made to proper dimensions to accommodate the required number of conduits.

33.5 The outlet for drawing wires and proper size earth continuity wire shall be run throughout the length of the conduit with the earth wire being efficiently fastened to the conduit by means of special clamps. Copper clamps shall be used for copper earth wire and GI clamps for GI wires.

34 Point Wiring:

34.1 Point wiring shall be commence from the first point control box / local control box for the points connected to the same circuit.

34.2 Point wiring for lights, fans, 5 A sockets, call bells, etc shall be carried out with copper conductor PVC insulated wires of 1.5 mm² cross section or as per Bill of Quantities.

34.3 The point wiring shall be inclusive of 20 mm / 25 mm / 32 mm sheet steel conduits of standard and approved make (as specified herein-before) along with approved quality conduit accessories such as bends, inspection bends, reducers, junction boxes, etc, together with wiring accessories such as switches, ferrules, PVC bushes, connectors, point control boxes (enclosure for electrical accessories) etc.

34.4 Point wiring shall be provided with 1.5 mm² PVC insulated copper ECC for earthing 3rd point of sockets, luminaries and fan fixtures.

34.5 Light control shall be either single, twin or multiple points controlled by a switch as specified.

35 Wiring Conductors:

35.1 The wiring conductors shall not be drawn into the conduits until the works of any nature that may cause damage to the wires are completed.

35.2 Before drawing the wires the conduits shall be thoroughly cleaned, drained and ventilated. Proper care shall be taken in pulling the wires.

35.3 Wiring for power and lighting circuits shall be carried out in separate and distinct wiring system.

35.4 Balancing of circuits in a three phase system shall be arranged before the installation is taken up.

35.5 The sub-main wiring shall be either in 3 phase 4 wire or single phase, 2 wire system.

35.6 Each sub-main wiring circuit shall also have its own copper ECC.

35.7 Circuit wiring shall generally be of single phase however, a maximum of 3 to 4 single phase circuits belonging to the same phase / pole could be installed in the same conduit or raceway.

35.8 Each circuit wiring shall be provided with suitable copper ECC.

35.9 Not more than ten light points / fan points shall be grouped on one lighting circuit. The load per circuit shall not exceed 800 W.

35.10 The minimum size of conductor for wiring of lighting circuits shall not less than 2.5 mm² in case of copper conductor. Power wiring shall not have more than two sockets connected to one circuit. 4.0 mm² copper conductors shall be used up to the power socket.

35.11 All the wiring shall be carried out in looping-in-loop system.

35.12 The maximum number of various size conductors that could be drawn in various sizes of conduits shall be as per Table II of IS: 732 (Latest Edition).

35.13 The wiring shall be colour coded

35.14 Table showing recommended colours of cables for easy identification of phases and neutral:

SL NO	TYPE	COLOUR OF WIRES
1	Phase	Red

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SL NO	TYPE	COLOUR OF WIRES
		Yellow / White Blue
2	Neutral	Black
3	Earth	Green

35.15 All circuit wiring shall be provided with printed PVC identification ferrules at either end bearing the circuit number and designation.

35.16 The circuit wiring may be separately measured or included in point wiring as per the specifications given in Bill of Quantities.

12.4.11 Testing:

- The entire electrical system shall be tested as per IS: 732 – 1963.

GRAND TOTAL OF ALL WORKS **I (Civil, Sanitary & Plumbing and Electrical works)**

The total cost for **Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001** is Rs.....

(Rupees.....) only.

S.No.	Description of Items	Unit	Qty	Rate	Amount
1	Chipping of Loose Concrete/ Platers from walls, Roofs, Slab, Beam Coloumns, Parapet Wall etc by Hammering complete in all respects from Ground floor to terrace wherever requiredfrom ground floor to the terrace	m ³	150.00		
2	Cleaning of all chipped surfaces mentioned in item 1 and making the surface dust free.	LS	1.00		
3	Dismantling of Urinal	each	35.00		
4	Dismantling of Indian W.C or Indian Pan	each	35.00		
5	Dismantling of Wash Basin with Brackets or without Waste Fittings	each	25.00		
6	Dismantling of Door	each	25.00		
7	Dismantling of Wall Tiles	m ²	650.00		
8	Dismantling of strippingoff warm plaster	m ²	650.00		
9	Removal of rubbish, earth etc from the working site and disposal of the same, beyond the compound in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of Engineer-in-charge	m ³	175.00		
10	Dismantling of Pipes 50mm to 150mm dia	m	725.00		
11	welding in M.S rebar work with electric	point	15000.00		

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

12	Reinforcement for reinforced concrete work in all sort of structures including distribution bars, stirrups, binders etc initial straightening and removal of loose rust, cutting to requisite length, hooking and bending to correct shape, placing in proper position and binding with 16 gauge black annealed wire at every intersection, complete as per drawing and direction.	MT	11.00		
13	Supplying, Fitting and Fixing fibre reinforced polymer (FRP) composite door frame as per approved section with glass fibre reinforced plastic moulded skins and a special sandwich core, so as to impart monolithic composite structure as per approved technology of department of science and technology (DST) to satisfy IS: 4020 door testing performance criteria	m	175.00		
14	Chicken Mesh of approved quality for item 5 & 6	m	526.00		
15	Wood work in door and window frame, fitted and fixed in position complete including a protective coat of painting at the contact surface of the frame excluding cost of concrete. Iron Butt Hinges and MS clamps. (The quantum should be corrected upto three decimals) : Sal	m ³	7.00		

16	Supplying solid flush type doors of deluxe decorative (both side) Quality, conforming to IS: 2202 timber frame consisting of top and bottom rail and side styles of well seasoned timber 65mm wide each and the entire frame fitted with 27.5mm wide battens places both ways in order to make the door of solid core and internal lipping with teak, mahogany or rose wood approved decorative veneers using phenol formaldehyde as glue etc. complete including fitting, fixing the shutters in position but excluding the cost of hinges and other fittings : 35mm thick shutter	m ²	90.00		
17	Supplying and laying, true to line and level, vitrified tiles of approved brand in floor, skirting etc. set in 20mm sand cement mortar (1:4) and 2mm thick cement slurry back side of tiles using cement @2.91kg./M ² laid after application slurry using 1.75kg of cement per M ² below mortar only, joints grouted with admixture of white cement and colouring pigment to match with colour of tiles/epoxy grout materials of approved make as directed and removal of wax coating of top surface of tiles with warm water and polishing the tiles using soft and dry cloth upto mirror finish complete including the cost of materials, labour and all other incidental charges complete true to the manufacturer's specification and direction of Engineer-in-charge (All Toilets Flooring from 1st floor to 8th floor) i.e. Clerical toilet, ladies toilet, Officers toilet.	m ²	750.00		
18	Wall Tiles in DADO (All toilets from 1st Floor to 8th floor) i.e. Clerical toilet, ladies toilet, Officers toilet	m ²	750.00		
19	Supplying, Fixing Flat Back Urinal, size 590mm*390mm*380mm	each	35.00		

20	Supplying, Fixing of Wash Basin with Brackets or without Waste Fittings	each	35.00		
21	Supplying, fitting and fixing of Indian W.C or Indian Pan	each	35.00		
22	Supplying, Fixing PVC cistern	each	35.00		
23	Polythene Flash Pipe	each	35.00		
24	Supplying, Fixing Urinal Flash Pipe	each	35.00		
25	Jacketting Work	m ³	35.00		
26	Labour for fitting and fixing. U.P.V.C. pipes for above ground work including cost of jointing materials etc. fitting and fixing all necessary specials, cutting pipes, cutting holes in walls or R.C. floor where necessary and mending good all damages excluding the cost of masonry or concrete work, if necessary, but including the cost and fitting and fixing holder bat clamps (any floor) or for underground work including cutting trenches upto 1.5 metre and refilling the same complete as per direction of the Engineer-in-charge. (Payment will be made on centre line measurement of the total pipeline including specials.)	m	350.00		
27	Supplying, Fitting and Fixing Works				
	a) pipes 80mm	m	350.00		
	b) fittings				
	b.1) Coupler	each	48.00		
	b.2) Plain Tee	each	48.00		
	b.3) Door Tee	each	48.00		
	b.4) Door Tee (LH) & (RH)	each	48.00		

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	b.5) Plain Y	each	48.00		
	b.6) Door Y (LH) & (RH)	each	48.00		
	b.7) Double Y	each	48.00		
	b.8) Double Y with Door	each	48.00		
	b.9) Bend 45°	each	48.00		
	b.10) Bend 87.5°	each	48.00		
	b.11) Door Bend (T.C.)	each	48.00		
	b.12) Door Bend (LH) & (RH)	each	48.00		
	b.13) Cross Tee	each	48.00		
	b.14) Cross Tee with Door	each	48.00		
	b.15) Vent Cowl	each	48.00		
	b.16) Pipe Clip	each	48.00		
	b.17) W.C. Connectors (150mm long) 125 X 110 (W/WC Ring)	each	48.00		
	b.18) W.C. Connector Bend W/lipring	each	48.00		
	b.19) 125/110 P Trap with W.C Ring	each	48.00		
	b.20) Passover	each	48.00		
	b.21) Round Jali	each	48.00		
	b.22) W.C Ring	each	48.00		
	b.23) Door Gasket	each	48.00		
	b.24) Rubber Ring	each	48.00		
28	providing and applying two coats of cement bound modified anti-corrosive protective coating (Sika Top Armatec-108 of M/s. Sika India Pvt. Ltd. Or similar equivalent) to the steel reinforcement at the dosage recommended by the manufacturer, all complete as directed. Payment will be made on the contact area of old concrete surface.	m ²	1500.00		

29	Providing and applying two coats of resin bound anti corrosive rustoff protective coating of M/s. Sika India Pvt. Ltd. Or similar equivalent to the steel reinforcement at the dosage with mild brush atleast 72 hours interval recommended by the manufacturer, as directed. Payment will be made on the contact area as per old concrete surface.	Sqm	10208.94		
30	Providing and applying eopxy based bounding agent (Sikadur-32 LP or similar approved equivalent) for application to old concrete surface, all complete as per direction. Payment will be made on the concrete area of the old concrete surface.	m ²	925.00		
31	Piller Cock	each	48.00		
32	Providing and Fixing PTMT bip cock of approved quality and colour. 15mm nominal bore, 86mm long, weighing not less than 88grms.	each	35.00		
33	Providing and fixing PTMT stop cock of approved quality and colour. 15mm nominal bore, 86mm long, weighing not less than 88grms.	each	125.00		
34	Supplying,fitting and fixing approved brand P.V.C connector white flexible, with both ends coupling with heavy brass C.P. nut, 15mm dia	each	120.00		
			125.00		
35	Hire and labour charges for shuttering with centring and necessary staging up to 4.0m using approved stout props and thick hard wood planks of approved thickness with required bracing for concrete slabs, beams, columns, lintels curved or straight including fitting, fixing and striking out after completion of work	m ²	650.00		

36	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Black type) with necessary screws etc. complete : 200x10mm	each	48.00		
37	Providing and fixing ISI marked, ISI: 1341, M.S. heavy weight butt hinges with necessary screws etc. complete: 100x75x3.5mm	each	150.00		
38	providing and fixing mirror of superior glass (of approved quality)and of required shape and size with plastic moulded frame of approve make and shade with 6mm thick hard board backing : rectangular shape 453x357mm	each	25.00		
39	Marble work gang saw cut (polished and machine cut) of thickness 18mm for wall lining (veneer work), backing filled with a grout of average 12mm thick in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the marble shade: (to be secured to the backing by means of cramps, which shall be paid for separately). Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble. Area of slab upto 0.05sqm	m ²	65.00		
40	Plaster (to wall,floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints including throating, nosing and drip course, scaffolding/staging where necessary with 1:3 cement mortar 20mm thick plaster	m ²	1450.00		
41	Bracketing (at 1:1.5:3 cement concrete)	m ³	45.00		

42	Applying interior grade Acrylic Primer of approved quality and brand on plastered or concrete surface old or new surface to receive Distemper/ Acrylic emulsion paint including scraping and preparing the surface thoroughly, complete as per manufacturer's specification and as per direction of the EIC. (In Ground Floor)	m ²	1500.00		
43	Applying Acrylic Emulsion Paint of approved make and brand on walls and ceiling including sand papering in intermediate coats including putty: (Two coats)	m ²	1500.00		
44	Concealed Water Line				
	a) 32mm	m	225.00		
	b) 20mm	m	250.00		
	c) 15mm	m	250.00		
45	Providing and Fixing 12mm. Dia. PVC nozzles to the R.C.C member at an interval of 500 mm. centre to centre and injecting cement slurry admixed with cementitious grouting compound of approved make and @ 500 gms, per 50 kg of cement till refusal of cement slurry complete with all labour and materials.	m ²	625.00		
46	Providing and fixing PTMT liquid soap container 109mm wide, 125mm high and 112mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour. Weighing not less than 105gm.	each	18.00		
47	Providing and fixing PTMT soap Dish Holder having length of 138mm, breadth 102mm, height of 75mm with concealed fitting arrangements. Weighing not less than 106grms.	each	18.00		

48	Providing and fixing gun metal gate valve with C.I wheel of approved quality (screwed end) : 25mm nominal bore.	each	35.00		
49	Providing and fixing gun metal gate valve with C.I wheel of approved quality (screwed end) : 40mm nominal bore.	each	18.00		
50	Providing and fixing gun metal gate valve with C.I wheel of approved quality (screwed end) : 50mm nominal bore.	each	18.00		
51	Supply of PVC pipes and fittings (medium duty) confirming to ASTM D- 1785 & threaded to match with GI pipes as per IS: 1239 (part- 1): Tee 20mm dia	m	48.00		
52	Supply of PVC pipes and fittings (medium duty) confirming to ASTM D- 1785 & threaded to match with GI pipes as per IS: 1239 (part- 1): Tee 50mm dia	m	48.00		
53	Supplying, fitting and fixing Peet's valve fullway gunmetal standard pattern best quality of approved brand bearing ISI marking with fitting (tested to 21kg per sq.cm.) 50mm	each	18.00		
54	Providing 40x5mm flat iron hold fast 40cm long including fixing to frame with 10mm diameter bolts, nuts and wooden plugs and embedding in cement concrete block 30x10x15cm 1:3:6 mix (1 cement: 3 coarse sand: 6 graded stone aggregate 20mm nominal size).	each	350.00		
55	Brass hasp bolt of approved quality of fitted and fixed complete (oxidised) with 16mm dia rod with centre bolt and round fitting.	each	48.00		

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

56	Anodised aluminium D-type handle of approved quality manufactured from extruded section confirming to I.S. specification (I.S. 230/72) fitted and fixed complete	each	48.00		
57	Water Proofing Work, Cleaning of Terrace, Lift Machine Room and Water Proofing China Mossaic by providing and laying of cement slurry mix with water proofing chemical in specified proportion as directed by Bank's Civil Engineer followed by laying of 20 mm cement plaster base of ratio 1:4 with appropriate slope gradient. The prepared surface than gets tested by pouring of water for 3-4 days for verification of Leakages. The top and final layer of the surface than covered by China Mossaic marble Chips with white cement. The item includes lifting of Materials.	Sq m	5250.00		

GRAND TOTAL OF ALL WORKS
I (Civil, Sanitary & Plumbing and Electrical works)

The total cost for **Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001** is (Rupees.....) only.

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

13 PROFORMA FOR APPLICATION FOR EXTENSION OF TIME PERIOD

SL NO	PARTICULARS	DETAILS	
1	Name of contractor		
2	Name of the work as given in the Agreement		
3	Agreement No		
4	Estimated Tender Amount		
5	Date of commencement of work as per Agreement		
6	Period allowed for completion of work as per Agreement		
7	Date of completion stipulated in Agreement		
8	Period for which extension of time has been given previously		
a	1 st extension vide Architect's/Banker's letter No Dated	Month	Days
b	2 nd extension vide Architect's/Banker's letter No Dated	Month	Days
c	3 rd extension vide Architect's/Banker's letter No Dated	Month	Days
d	4 th extension vide Architect's/Banker's letter No Dated	Month	Days
e	Total extension previously given	Month	Days
9	Reasons for which extensions have been previously given (copies of the previous applications should be attached)		
10	Period for which extension is applied for		
11	Hindrances on account of which extension is applied for with dates on which hindrances occurred and the period for which these are likely to last		
a	Serial No		
b	Nature of hindrance		
c	Date of occurrence		
d	Period for which it is likely to last		
e	Overlapping period if any, with reference to item(e) above		
12	Extension of time required for extra work		
13	Details of extra work and the amount involved		
14	Total extension of time required for 11 & 12.		

Submitted to the Architect Consultant/ Bank.....

Place:

Signature:

Date:

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

Name:

14 FORMAT OF ARTICLES OF AGREEMENT

(TO BE EXECUTED ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE BY THE CONTRACTOR AFTER ISSUING FORMAL WORK ORDER)

ARTICLES OF AGREEMENT made this _____ day of _____ 2015 between the **Central Bank of India**, having its **Zonal Office at 6th Floor, Central Bank Building, 33, Netaji Subhas Road, Kolkata- 700 001** (hereinafter called "the BANK") which expression should include its successor/s and assignee/of the **ONE PART** and M/s. _____ having its office at _____ (hereinafter called the "CONTRACTOR") of the other part, which expression should include its successor/s and **permitted** assignee/s.

WHEREAS the Bank is desirous of **Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001** and has caused specifications describing the work to be prepared by **SRIJANI**, having their registered office at **B-70, Narkelbagan, Garia, Kolkata 700084**, (hereinafter called the "CONSULTANT").

AND WHEREAS the said specifications and the schedule of Items and quantities have been signed by and on behalf of the parties hereto.

AND WHEREAS the contractor has agreed to execute upon and subject to the conditions set forth herein and schedule of items and quantities, General conditions of contract, special conditions of contract including all other conditions as mentioned in the tender document, specifications and all correspondence exchanged by or between the parties from the submission of tender till the award of work, both letters inclusive, (all of which are collectively hereinafter referred to as "the said conditions") The work described in the said specification and included in the schedule of items and quantities at the respective rates therein set forth amounting to the sum of Rs _____ (Rupees. _____ only) as therein arrived at or such other sum as shall become payable there under (hereinafter referred to as "THE SAID CONTRACT AMOUNT").

NOW IT IS HEREBY AGREED AS FOLLOW:

1. In condition of the said contract amount to be paid at the times and in the manner set forth in the said conditions, the contractor shall upon and subject to the said conditions execute and complete the work described in the said specification and the schedule of items and quantities.
2. The Bank shall pay the Contractor the said Contract amount, or such other sum as shall become payable, at the times and in the manner specified in the said conditions.
3. The consultant in the said conditions shall mean the said SRIJANI, having their registered office at B-70, Narkelbagan, Garia, Kolkata 700084, or in the event of their ceasing to be the consultant for the person or purpose of this contract for whatever reason, such other person or persons as shall be nominated for that purpose by the Bank, provided always that no person subsequently appointed to be consultant under this contract shall be entitled to disregard or overrule any previous decision or approval or direction given or expressed in writing by the consultant for the time being.
4. The said condition and Appendices thereto shall be read and considered as forming part of this Agreement, and the parties hereto shall respectively abide by, submit themselves to the said conditions and perform the agreement on their part respectively in the said conditions contained.
5. The plans, agreement documents mentioned herein shall form the basis of this contract.
6. This contract is neither a fixed lump sum contract, nor a piece work contract but is a contract to carry out the work in respect for **Structural/ Civil Repairing, Renovation & Restoration works of Central Bank of India Building at 33, NS Road, Kolkata- 700 001** as per the scope described and to be paid for according to actual measured quantities at the rates contained in the schedule of rates and probable quantities or as provide in the said conditions.
7. The Bank reserves to itself the right of altering the 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.
8. Time shall be considered as the essence of this contract and the contractor hereby agrees to commence the work on the day of handing over of the site or within fourteen days from the date of issue of formal work order whichever is later as provided for in the said conditions and to complete the entire work within 08 (Eight) months subject nevertheless to the provisions for extension of time.
9. All payments by the Bank under this contract will be made at Kolkata.
10. Any dispute arising under this Agreement shall be referred to arbitration in accordance with the stipulations laid down in the general conditions of contract.
11. That the several parts of this contract have been read by the contractor and fully understood by the contractor.
12. **The Tender document forms part of this contract and the terms and conditions mentioned in the Tender Documents are binding on the parties to this Agreement.**

In witness whereof the Bank and the contractor have set their respective hands to these present through their duly authorized official and the said two duplicate hereof to be executed on its behalf of the day and year first herein above written.

Signed on behalf of the Central Bank of India
by duly authorized representative

Signed of official stamp of contractor
or its authorized representative

In the presence of:

In the presence of:

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

Signature_____

Name_____

Address_____

Signature_____

Name_____

Address_____

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16 FORMAT OF GUARANTEE FOR WATERPROOFING WORK

(TO BE EXECUTED BY THE FIRM/ CONTRACTOR IN RESPECT OF WATERPROOFING TREATMENT WORK AT ROOF)

Name of the Project:

Free Maintenance Guarantee- Waterproofing Work by

We _____hereby guarantee that the surfaces treated by us for waterproofing in the above work. for M/s _____the general building Contractor for the above work, shall remain entirely water tight. Should. however. due to any unforeseen defect left out in the work carried out by us at the time of execution of the work. there be any leakage from any surface treated by us during the period of 5 (five) years from the date of virtual completion of the work ie. From _____to_____the same shall be rectified by us without any extra cost to the Central Bank of India.

However, we shall not be responsible in any way if our work is tampered with or if the body of the structure is damaged due to sinking. cracking and/or by any other act of God beyond our control.

Signature of the Waterproofing Contractor

Signature of the General Building Contractor

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

17 FORMAT OF PERFORMANCE BANK GUARANTEE FOR ROOF TREATMENT WORK

(TO BE SUBMITTED AFTER DEFECT LIABILITY PERIOD IS OVER INCLUDING CLAIM PERIOD OF 3 MONTHS FOR A FURTHER PERIOD OF 4 YEARS)

The Assistant General Manager

Zonal Office, 6th Floor

Central Bank of India

Central Bank Building

33, Netaji Subhas Road

Kolkata- 700 001

WHEREAS _____ (Company Name) registered under the Indian Companies Act 1956 and having its Registered Office at _____, India (hereinafter referred to as "the VENDOR") has undertaken to Supply and deliver the Hardware / Software, including supply of Spares, Comprehensive inland Transportation, Storage at site, their installation, Testing and Commissioning and demonstration of Guaranteed Performance and Training of Personnel as per your Purchase Order No. _____ dated _____ (hereinafter referred to as "the CONTRACT").

AND WHEREAS in terms of the Conditions as stipulated in the Contract, the VENDOR is required to furnish, a Bank Guarantee by way of Performance Guarantee, issued by a Scheduled Commercial Bank in India, in your favour, to secure due and satisfactory compliance of the obligations by the VENDOR on its part, in accordance with the CONTRACT, (which guarantee is hereinafter called as "the PERFORMANCE GUARANTEE").

AND WHEREAS the VENDOR has approached us, _____ for providing the PERFORMANCE GUARANTEE, AND WHEREAS in consideration of the fact that the VENDOR is our valued constituent and the fact that it has entered into the CONTRACT with you, WE, _____ having _____ Office at _____, India have agreed to issue this PERFORMANCE GUARANTEE. THEREFORE, WE, _____, through our local office at India furnish you this PERFORMANCE GUARANTEE in manner hereinafter contained and agree with you as follows:

1. We, _____, undertake to pay the amounts due and payable under this Guarantee without any demur, merely on demand from you and undertake to indemnify you and keep you indemnified from time to time to the extent of ` _____ (Rupees _____ only) an amount equivalent to ____ % of the Contract Price against any loss or damage caused to or suffered by or that may be caused to or suffered by you on account of any breach or breaches on the part of the VENDOR of any of the terms and conditions contained in the Contract and in the event of the VENDOR defaulting in carrying out any of the work or discharging any obligation in relation thereto under the CONTRACT or otherwise in the observance and performance of any of the terms and conditions relating thereto in accordance with the true intent and meaning thereof, we shall forthwith on demand pay to you such sum or sums not exceeding the sum of ` _____ (Rupees _____ only) as may be claimed by you on account of breach on the part of the VENDOR of its obligations in terms of the CONTRACT.

2. Notwithstanding anything to the contrary we agree that your decision as to whether the VENDOR has made any such default or defaults and the amount or amounts to which you are entitled by reasons thereof will be binding on us and we shall not be entitled to ask you to establish your claim or claims under Performance Guarantee but will pay the same forthwith on your demand without any protest or demur.

3. This Performance Guarantee shall continue and hold good until it is released by you on the application by the VENDOR after expiry of the relative guarantee period of the Contract and after the VENDOR had discharged all its obligations under the Contract and produced a certificate of due completion of the work under the Contract and submitted a 'No Demand Certificate' provided always that the guarantee shall in no event remain in force after the day of _____ without prejudice to your claim or claims arisen and demanded from or otherwise notified to us in writing before the expiry of the said date which will be enforceable against us notwithstanding that the same is or are enforced after the said date.

4. Should it be necessary to extend Performance Guarantee on account of any reason whatsoever, we undertake to extend the period of Performance Guarantee on your request under intimation to the VENDOR till such time as may be required by you. Your decision in this respect shall be final and binding on us.

5. You will have the fullest liberty without affecting Performance Guarantee from time to time to vary any of the terms and conditions of the Contract or extend the time of performance of the Contract or to postpone any time or from time to time any of your rights or powers against the VENDOR and either to enforce or forbear to enforce any of the terms and conditions of the Contract and we shall not be released from our liability under Performance Guarantee by the exercise of your liberty with reference to matters aforesaid or by reason of any time being given to the VENDOR or any other forbearance, act, or omission on your part or any indulgence by you to the VENDOR or by any variation or modification of the Contract or any other act, matter or things whatsoever which under law relating to sureties, would but for the provisions hereof have the effect of so releasing us from our liability hereunder provided always that nothing herein contained will enlarge our liability hereunder beyond the limit of ` _____ (Rupees _____ only) as aforesaid or extend the period of the guarantee beyond the said day of _____ unless expressly agreed to by us in writing.

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)

6. The Performance Guarantee shall not in any way be affected by your taking or giving up any securities from the VENDOR or any other person, firm or company on its behalf or by the winding up, dissolutions, insolvency or death as the case may be of the VENDOR.

7. In order to give full effect to the guarantee herein contained, you shall be entitled to act as if we were your principal debtors in respect of all your claims against the VENDOR hereby guaranteed by us as aforesaid and we hereby expressly waive all our rights of surety ship and other rights, if any, which are in any way inconsistent with any of the provision of Performance Guarantee.

8. Subject to the maximum limit of our liability as aforesaid, Performance Guarantee will cover all your claim or claims against the VENDOR from time to time arising out of or in relation to the Contract and in respect of which your claim in writing is lodged on us before the date of expiry of Performance Guarantee.

9. Any notice by way of demand or otherwise hereunder may be sent by special courier, telex, fax or registered post to our local address as aforesaid and if sent by post it shall be deemed to have been given when the same has been posted.

10. The Performance Guarantee and the powers and provision herein contained are in addition to and not by way of limitation of or substitution for any other guarantee or guarantees here before given to you by us (whether jointly with others or alone) and now existing uncanceled and that Performance Guarantee is not intended to and shall not revoke or limit such guarantee or guarantees,

11. The Performance Guarantee shall not be affected by any change in the constitution of the VENDOR or us nor shall it be affected by any change in your constitution or by any amalgamation or absorption thereof or therewith but will ensure to the benefit of and be available to and be enforceable by the absorbing or amalgamated company or concern.

12. The Performance Guarantee shall come into force from the date of its execution and shall not be revoked by us any time during its currency without your previous consent in writing.

13. We further agree and undertake to pay you the amount demanded by you in writing irrespective of any dispute or controversy between you and the VENDOR.

14. We have the power to issue this Performance Guarantee in your favour under the Memorandum and Articles of Association of our Bank and the undersigned has full power to execute this Performance Guarantee under the Power of Attorney issued by the Bank.

15. Notwithstanding anything contained herein above;

i) our liability under this Guarantee shall not exceed ` _____ (Rupees _____ only);

ii) this Performance Bank Guarantee shall be valid upto and including the date _____; and

iii) we are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before the expiry of this guarantee.

For and on behalf of Central Bank of India

Assistant General Manager with seal

ADDRESS:

Project Engineer: Nilesh Haldhar (Sr. Manager- Civil Engineer)