

STATE BANK OF INDIA

3rd Floor, 'G' Block, Synergy Building, State Bank of India, Bandra Kurla Complex,
Bandra (E), Mumbai 400 051.

TENDER ID: MUM20240202

PART – A: TECHNICAL BID

**TENDER FOR PROPOSED STRUCTURAL REPAIRS, CIVIL RENOVATION &
EXTERNAL PAINTING OF STAFF QUARTERS
AT MATRUCHAYA, EVERSINE NAGAR, MUMBAI.**

TENDER SUBMITTED BY :

NAME : _____

ADDRESS : _____

DATE : _____

ARCHITECT :

**M/s. KALA AREKHAN
ARCHITECT & INTERIOR DESIGNER
101, VINDHYCHAL CO-OP HOUSING SOC.
PLOT NO. 204, SECTOR IV,
CHARKOP- KANDIVLI (W),
MUMBAI- 400 067.**

NOTICE INVITING TENDERS

TENDER FOR PROPOSED STRUCTURAL REPAIRS, CIVIL RENOVATION & EXTERNAL PAINTING OF STAFF QUARTERS AT MATRUCHAYA, EVERSINE NAGAR, MUMBAI.

State Bank of India (herein after referred to as 'SBI / the Bank'), having its Local Head Office at Bandra Kurla Complex, Mumbai invites item rate e-tenders from the vendors / contractors empaneled with State Bank of India, Local Head Office Mumbai Metro under category – "**CB" for Civil Construction Project Including Major Repairs and Renovation work above ₹ 50.00 Lakh and up to ₹ 100.00** Lakh who received tender notice from the Project Architect for Proposed Creation Of SBILD At Vidhani Bldg. (Ground, First, Second & Third Floor), Navi Mumbai.

2. Interested bidders are advised to go through the entire RFP before submission of online bids to avoid any chance of elimination. The criteria and the actual process of evaluation of the responses to this RFP and subsequent selection of the successful bidder will be entirely at Bank's discretion.

3. All the interested bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the e-tendering.

The details of tender are as under:

SN	Particulars	Details
1	Name of work	TENDER FOR PROPOSED STRUCTURAL REPAIRS, CIVIL RENOVATION & EXTERNAL PAINTING OF STAFF QUARTERS AT MATRUCHAYA, EVERSINE NAGAR, MUMBAI.
2	Nature of Work	Repairs & Restoration Work
3	Time allowed for completion	120 Days (4 Months)
4	Earnest Money Deposit	₹ 98,000/- (Rupees Ninety Eight Thousand Only) by means of Demand Draft / Pay Order (Valid for a period of 90 Days from the last date of submission of the tender) from any scheduled Nationalized Bank drawn in favor of SBI and payable at Mumbai. <i>Concession as per MSMED Act will be extended to eligible bidders.</i>
5	Security Deposit (SD)	For the successful bidder, total security deposit shall be 5% of the contract value. Out of this, 2% of the contract value will be in the form of Initial Security Deposit (ISD); which includes the EMD. Balance 3% shall be deducted from the running account bill of the work at the rate of the 10% of respective running account bill i.e. deduction from each running bill

		account will be 10%, till the 3% of the contract value is achieved and total of 5%. In case running bills are not paid/submitted, whole 3% of the remaining ISD will be deducted from the final bill paid.
6	Date of issue of tender documents (Technical Bid & Price Bid) form the Bank's website	From 06.02.2024 to 26.02.2024 up to 11:00 AM on Bank's website : https://bank.sbi/web/sbi-in-the-news/procurement-news and e-Tender Portal: https://etender.sbi/SBI/
	(a) Technical Bid (Only SBI empanelled vendors)	From 06.02.2024 to 26.02.2024 Available at M/s e-Procurement Technologies Ltd., our Service Provider's portal https://etender.sbi/SBI/
	(b) Online Indicative Price Bid	From 06.02.2024 to 26.02.2024 Available at M/s e-Procurement Technologies Ltd., our Service Provider's portal https://etender.sbi/SBI/ (Price Bids of only Technically qualifies Bidders will be opened)
	Site Visit cum Pre-Bid Meeting	At 04:00 PM on 12.02.2024 at 4.00 PM Venue: Staff Quarters At Matruchaya, Evershine Nagar, Mumbai Pre-Bid Meeting attendance is mandatory.
7	Last date & time for submission of EMD in original	26.02.2024 by 11:00 AM at address as mentioned in point no.: 16 of the NIT. Note: It is sole responsibility of the bidder to ensure submission of EMD by stipulated date and time at specified address failing which they will not be eligible to participate in online price bidding.
8	Last date & time for submission of Online Technical bid	26.02.2024 by 11:00 AM To be submitted online on e-tender portal https://etender.sbi/SBI/
9	Last Date and time for submission of Online Indicative Price Bid	26.02.2024 by 11:00 AM To be submitted online on e-tender portal https://etender.sbi/SBI/ (Price bids of only Technically qualified bidders will be opened.)
10	Date and Time of opening of Online Technical Bid	26.02.2024 by 11:30 AM To be submitted online on e-tender portal https://etender.sbi/SBI/
11	Date and Time of opening of Online Indicative Price Bid	26.02.2024 after opening of Technical Bid. The price bid of only those bidders will be opened who got shortlisted in the technical bid.
12	Date & Time of Reverse Auction	On 26.02.2024 at 04:00 PM Provider's portal https://etender.sbi/SBI/
13	Defects Liability / Warranty period	1-year from the date of installation for free replacement for any manufacturing defect (excluding damages due to natural calamities).
14	Liquidated Damages	0.50% per week subject to max. 5% of contract amount for delay in completion of work.
15	Validity of offer	90 days from the date of opening of Price-bid
16	Value of Interim Certificate	Rs. 45 Lakhs. No advance on materials / plant /

		machinery or mobilization advance shall be paid under any circumstances
17	Address for Communication	The Assistant General Manager (P&E), State Bank of India, 3rd Floor, 'G' Block, Synergy Building, Bandra Kurla Complex, Bandra (E), Mumbai 400 051 agmpe.lhomum@sbi.co.in
18	Contact Person of e-tender service provider for any clarifications regarding e-Tendering procedure, system requirements, digital signature etc.	i. Geeta Gautam – 079-68136814, 7990334460 geeta@auctiontiger.net ii. Sujith - 7940270579, sujith@eptl.in iii. Pooja Shah – 9328931942, pooja.shah@eptl.in iv. Khushboo Mehta – 9510813528, 9081000427, Khushboo.mehta@eptl.in v. Other Contact details: +91 9904406300 +91 9510812960 +91 9265562821 +91 6354919566 e-mail: etender.support@sbi.co.in

19. The Contractor/ Vendor shall sign and stamp each page of the tender document thereby ensuring the number and sequence of all pages. Tender documents without seal and signature of the authorized tenderer are liable to be rejected.

20. No conditions other than mentioned in the tender will be considered, and if given they will have to be withdrawn before opening of the price-bid.

21. The State Bank of India reserve their rights to accept or reject any or all the tenders, either in whole or in part without assigning any reason(s) for doing so and no claim / correspondence shall be entertained in this regard.

22. In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.

23. Tenders received without EMD shall be summarily rejected and such tenders shall not be allowed to participate in the online price bidding process.

24. In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.

Yours faithfully,

Assistant General Manager (P&E)

INSTRUCTIONS TO THE TENDERERS

1.0 Scope of work

Repairs & Restoration Work

1.1 Site and its location

Staff Quarters At Matruchaya, Evershine Nagar, Malad (West) Mumbai.

2.0 Tender documents

2.1 The work has to be carried out strictly according to the conditions stipulated in the tender consisting of the following documents and the most workmen like manner.

- Instructions to tenderers
- General conditions of Contract
- Special conditions of Contract
- Technical Specifications
- Drawings
- Price bid

2.2 The above documents shall be taken as complementary and mutually explanatory of one another but in case of ambiguities or discrepancies, shall take precedence in the order given below:

- a. Price Bid
- b. Technical specifications
- c. Drawings
- d. Special conditions of contract
- e. General conditions of contract
- f. Instructions to Tenderers

2.3 Complete set of tender documents including relative drawings can be downloaded from the Bank's website **BANK.SBI (www.sbi.co.in)** under <Link>procurement news.as per schedule furnished in the NIT.

2.4 The tender documents are not transferable.

3.0 Site Visit

3.1 The tenderer must obtain himself on his own responsibility and his own expenses all information and data that may be required for the purpose of filling this tender document and enter into a contract for the satisfactory performance of the work. The tenderer is requested satisfy himself regarding the availability of water, power, transport and communication facilities, the character quality and quantity of the

materials, labour, the law and order situation, climatic conditions local authorities requirement, traffic regulations etc.

The tenderer shall be solely responsible for considering the financial effect of any or all the factors while submitting his tender.

4.0 **Earnest Money**

4.1 The tenderers are requested to submit the Earnest Money of **₹ 98,000/- (Rupees Ninety Eight Thousand Only)** by means of Demand Draft / Pay Order (Valid for a period of 90 Days from the last date of submission of the tender) from any Scheduled / Nationalized Bank drawn in favour of **SBI and payable at Mumbai.**

4.2 EMD in any other form other than as specified above will not be accepted. Tender not accompanied by the EMD in accordance with clause 4.1 above shall be rejected.

4.3 No interest will be paid on the EMD.

4.4 EMD of unsuccessful tenderer will be refunded within 30 days of award of Contract.

4.5 EMD of successful tenderer will be retained as a part of security deposit.

5.0 **Initial/ Security Deposit**

The successful tenderer will have to submit a sum equivalent to 2% of accepted tender value less EMD by means of DD drawn in favor of SBI. Payable at **Mumbai** within a period of 10 days from the date of receipt of Letter of Intent (LOI)/Work Order from SBI.

No interest shall be paid to the amount retained by the SBI as Security Deposit.

6.0 **Security Deposit**

6.1 Total security deposit shall be 3% of contract value. Out of this 2% of contract value is in the form of Initial Security Deposit (ISD) which includes the EMD. Balance 1% shall be deducted from the running account bill of the work at the rate of 10% of the respective running account bill i.e., deduction from each running bill account will be @10% till Total Security Deposit (TSD) including ISD reaches to 3% of contract value. The 50% of the Total Security Deposit shall be paid to the contract on the basis of Architect's certifying the virtual completion. The balance 50% would be paid to the contractors after the defects liability period as specified in the contract.

6.2 No interest shall be paid to the amount retained by the Bank as Security Deposit.

6.3 **Additional Security Deposit:** Additional Security Deposit (ASD) / Additional Performance Guarantee (APG) shall be applicable if the bid price is below 7.5% of the estimated cost put to tender. The amount of such ASD / APG shall be difference between 92.5% of estimated cost put to tender and the quoted price.

7.0 **Signing of contract Documents**

The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract with the **State Bank of India, Premises Estate Department, Local Head Office, BKC, Mumbai** within 15 days from the receipt of intimation of acceptance of the tender by the SBI. However, the written acceptance of the tenders by the Bank will constitute a binding agreement between the Bank and successful tenderer whether such formal agreement is subsequently entered into or not.

7.0 **Completion Period**

Time is essence of the contract. The work should be completed in all respect accordance with the terms of contract within a period of **180 Days (6 months)** from the date of award of work.

8.0 **Validity of tender**

Tenders shall remain valid and open for acceptance for a period of 90 days from the date of opening price bid. If the tenderer withdraws his/her offer during the value period or makes modifications in his/her original offer which are not acceptable to Bank without prejudice to any other right or remedy the Bank shall be at liberty forfeit the EMD.

9.0 **Liquidated Damages**

The liquidated damages on account of delay shall be 0.50% of Cumulative Awarded value per week subject to a maximum of 5% of Cumulative awarded contract value or actual Invoice Value.

10.0 **Rate and prices:**

10.1 **In case of item rate tender**

10.1.1 The tenderers shall quote their rates for individual items both in words and figure. In case of discrepancy between the rate quoted in words and figures, the unit rate quantity in words will prevail. The amount of each item shall be calculated, and the requisite total is given. In case of discrepancy between the unit rate and the total amount calculated from multiplication of unit rate and the quantity the unit rate quoted will govern and the amount will be corrected.

If no rate is quoted for one or more tender items, such tenders shall be treated as **Non-Responsive Tenders** and the same shall be summarily rejected.

10.1.2 The tenderers should not change the units as specified in the tender. If any unit is changed the tenders would be evaluated as per the original unit and the Contractor/ Vendor would be paid accordingly.

1.1.3 The tenderer should not change or modify or delete the description of the item. If any discrepancy is observed he should immediately bring to the knowledge of the **SBI**.

11.1.4 Each page of the BOQ shall be signed by the authorized person and cutting or overwriting shall be duly attested by him.

11.1.5 Each page shall be totaled, and the grand total shall be given.

11.1.6 The rate quoted shall be be quoted in Indian Currency (₹) only and shall be firm and shall include all costs, allowances, taxes, levies during the currency of contract including authorized extension, if any, but excluding GST, which shall be mentioned in the bills/invoices separately, as applicable.

11.1.7The SBI reserve their rights to accept any tenders, either in whole or in prior may entrust the work in phases or may drop the part scope of work at any stage of the project within its sole discretion without assigning any reason(s) for doing so and no claim / correspondence shall be entertained in this regard.

11.1.8 In case, it is decided by the SBI to drop one or more Items from the scope of work at any stage of the project, the Contractor/ Vendor shall not be entitled to raise any claim /compensation for such deleted scope of work. Also, the SBI may consider issuing work order for various branches/offices in phases but within a reasonable time interval and the Contractor/ Vendor shall be bound to execute the same within the stipulated time period and as per rates quoted by them in this tender without any claim for price escalation.

LETTER OF UNDERTAKING (Annexure 1)

(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,

The Assistant General Manager (P&E),
State Bank of India,
3rd Floor, 'G' Block, Synergy Building,
Bandra Kurla Complex,
Bandra (E),
Mumbai 400 051.

Dear Sir,

Having examined the drawings, specification, design and schedule of quantities relating to the works specified in the memorandum hereinafter set out and having visited and examined the site of the works specified in the said memorandum and having acquired the requisite information relating thereto as affecting the tender, I/We hereby offer to execute the works specified in the said memorandum at the rates mentioned in the attached Schedule of Quantities and in accordance in all respects with the specifications, design, drawings and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions, Schedule of Quantities and Conditions of Contract and with such materials as are provided for by, and in all other respects in accordance with such conditions so far as they may be applicable.

MEMORANDUM

(a)	Description of work	PROPOSED STRUCTURAL REPAIRS, CIVIL RENOVATION & EXTERNAL PAINTING Of STAFF QUARTERS AT MATRUCHAYA, EVERSINE NAGAR, MUMBAI.
(b)	Earnest Money	₹ 98,000/- (Rupees Ninety Eight Thousand Only) by means of Demand Draft / Pay Order (Valid for a period of 90 Days from the last date of submission of the tender) from any scheduled Nationalized Bank drawn in favour of SBI and payable in Mumbai.
(c)	Time allowed for completion of the Works from Seven day after the date of written Order or date of handing over of the site (Whichever is later) to commence the work	180 days (6 Months)

- 1) Should this tender be accepted, I/we hereby agree to abide by and fulfill the terms and provisions of the said conditions of contract annexed hereto so far as may be applicable or in default thereof to forfeit and pay to SBI, the amount mentioned in the said contract.

2) I / We have deposited a sum of ₹ 98,000/- (Rupees Ninety Eight Thousand Only) of the total tender amount as Earnest Money with the SBI which amount is not to bear any interest. Should I / We fail to execute the Contract when called upon to do so I / We do hereby agree that this sum shall be forfeited by me/us to State Bank of India on behalf of SBI,

Further, under any circumstances, whatsoever, if I/We fail to comply the same including compliance of any such other conditions of tender within the stipulated time. I /We hereby, authorized State Bank of India to cancel my/our tender, to forfeit my EMD/ISD/ASD and to take further necessary action as deemed fit including debarring our firm from participating in State Bank of India future tenders/de-paneling etc.

3) I/ We understand that as per terms of this tender, the SBI may consider accepting our tender in part or whole or may entrust the various work proposed in phases. We, therefore, undertake that we shall not raise any claim/ compensation in the eventuality of Bank deciding to drop any of the work from the scope of work of this tender at any stage during the contract period. Further, we also undertake to execute the work entrusted to us in phases on our approved rates and within stipulated time limit without any extra claim for price escalation as also provided for in the clause 11.1.6 "Instructions to Tenderers" of this tender.

4) I/ We, hereby, also undertake that, we will not raise any claim for any escalation in the prices of any of the material during the currency of contract/execution/completion period including authorized extended contract period, if any.

5) Our Bankers are:

I)

ii)

The names of partners of our firm are:

i)

ii)

Name of the partner of the firm

Authorised to sign

(Name of person having Power of Attorney to sign the Contract.

(Certified true copy of the Power of Attorney should be attached)

Yours faithfully,

Signature of Contractors.

Signature and addresses of Witnesses

i)

ii)

Process Compliance Statement (Annexure 2)

(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,
E-Procurement Technologies Ltd. (Auction Tiger)
B-704 Wall Street - II,
Opp. Orient Club,
Nr. Gujarat College, Ahmedabad - 380 006.
Gujarat State, India

Sub: Tender For Proposed External Painting ,Other Repairs Work Of Staff Quarters at Matruchaya, Evershine Nagar, Malad (West) Mumbai

Dear Sir,

This has reference to the Terms & Conditions for the E-Tendering mentioned in the Tender document

This letter is to confirm that:

- 1) The undersigned is authorized representative of the company.
- 2) We have studied the Commercial Terms and the Business rules governing the E-Tendering as mentioned in RFP of SBI as well as this document and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We confirm that SBI and ETL shall not be liable & responsible in any manner whatsoever for my/our failure to access & bid on the E-Tendering platform due to loss of internet connectivity, electricity failure, virus attack, problems with the PC, any other unforeseen circumstances etc. before or during the E-Tendering event.
- 5) We also confirm that we have a valid digital signature certificate issued by a valid Certifying Authority.**
- 6) We also confirm that we will mail the price confirmation & break up of our quoted price as per Annexure III & Annexure IV within 24 hours of the completion of the E-tendering and the format as requested by SBI/ETL.
- 7) We, hereby confirm that we will honor the Bids placed by us during the E-Tendering process.

With regards,

Date:

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Scan it and send to this Document on allocations@eptl.in

SAMPLE BUISNESS RULE DOCUMENT

BUISNESS RULE DOCUMENT OF ONLINE E-REVERSE AUCTION FOR PROPOSED STRUCTURAL REPAIRS, CIVIL RENOVATION & EXTERNAL PAINTING OF STAFF QUARTERS AT MATRUCHAYA, EVERSINE NAGAR, MUMBAI.

BUYER NAME	STATE BANK OF INDIA
AUCTION TO BE CONDUCTED BY	M/s e-Procurement Technologies Ltd. B-704, Wall Street - II, Opp. Orient Club, Nr. Gujarat College, Ahmedabad - 380 006. Gujarat State, India Phone: +91 79 61200 Auction Website: https://etender.sbi
DATE & TIME OF AUCTION (Date and Time of E-reverse auction)	Online Auction Date: 26.02.2024 Auction Time: One hour (With 6 extensions of 5 min each)
DOCUMENTS ATTACHED	(A) Business rules for Reverse Auction (B) Terms & conditions of Reverse Auction (C) Annexure - I (D) Process Compliance Statement (Annexure II) (E) Price Confirmation Letter (Annexure III) (F) Price break up (Annexure IV) (G) Contact Information
SPECIAL INSTRUCTIONS	Bidding in the last minutes and seconds should be avoided in the bidders own interest Neither the Service Provider nor SBI will be responsible for any lapses /failure on the part of the Contractor/ Vendor in such cases

Important Note: As per the new Inter-operability guidelines released by Controller of Certifying Authorities (CCA), the Secured Socket Layer (SSL) certificate for an e-Procurement application is generated on a new algorithm, SHA2. Also, the Digital Signature Certificates that will be applicable for these platforms have to be SHA2 algorithm compliant. For the same, the users have to ensure that they have Windows XP (SP3) / Windows Vista / Windows 7 installed in their respective PC / Laptop. In case of Windows XP service pack -3, if you get any issue you can install the SSL patch, which is available at our download section of our e-Tender/e-Auction Portal and also at our corporate website www.auctiontiger.net just below the label of "Download".

(A) Business rules for Reverse Auction:

Against this Enquiry for the subject item/system with detailed scope of supply as per our specification, SBI may resort to "**REVERSE AUCTION PROCEDURE**" i.e. ON-LINE BIDDING on INTERNET.

2. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.

3. SBI will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on Internet.
4. SBI will inform the Contractor/ Vendor in writing in case reverse auction, the details of service provider to enable them to contact and get trained.
5. Business rules like event date, time, start price, bid decrement, extensions, etc. also will be communicated through service provider for compliance.
6. Contractor/ Vendors have to send the mail the compliance form in the prescribed format (provided by service provider) before start of Reverse auction. Without this the Contractor/ Vendor will not be eligible to participate in the event.
7. Reverse auction will be conducted on schedule date & time.
8. At the end of reverse auction event, the lowest bidder value will be known on the network.
9. The lowest bidder has to mail the duly signed filled-in prescribed format as provided on case-to-case basis to SBI through service provider within 24 hours of auction without fail.
10. In case SBI decides not to go for Reverse auction procedure for this tender enquiry, the price bids and price impacts, if any already submitted and available with SBI shall be opened as per SBI standard practice.
11. The reverse auction will be treated as closed only when the bidding process gets closed in all respects for the item listed in the tender.

(B) Terms & conditions of Reverse Auction:

SBI shall finalize the procurement of the item against this Tender through reverse auction mode. SBI has made arrangement with M/s. e-Procurement Technologies Ltd, Ahmedabad (ETL) who shall be SBI's authorized service provider for the same. Please go through the guidelines given below and submit your acceptance to the same along with your Commercial Bid.

1. Computerized Reverse auction shall be conducted by SBI, on pre-specified date, while the Contractor/ Vendors shall be quoting from their own offices/ place of their choice. Internet connectivity and other paraphernalia requirements shall have to be ensured by Contractor/ Vendors themselves. In the event of failure of their Internet connectivity, (due to any reason whatsoever it may be) it is the bidders' responsibility. In order to ward-off such contingent situation bidders are requested to make all the necessary arrangements/ alternatives such as back -up power supply whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power at the premises of Contractor/ Vendors during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this the time for the auction cannot be extended and SBI is not responsible for such eventualities.
2. ETL shall arrange to train your nominated person(s), without any cost to you. They shall also explain you all the Rules related to the Reverse Auction. You are required to give your compliance on it before start of bid process.
3. **BIDDING CURRENCY AND UNIT OF MEASUREMENT:** Bidding will be conducted in Indian currency & Unit of Measurement will be displayed in Online Auction.
4. **BID PRICE:** The Bidder has to quote the rate as per the Tender Document provided by State Bank of India.

5. **VALIDITY OF BIDS:** The Bid price shall be firm for a period specified in the tender document and shall not be subjected to any change whatsoever.
6. At the end of the reverse auction, bidder has to provide the price confirmation letter & a detail break up for his lowest offer within 24 hour of closing of auction as per the Annexure III & IV respectively.
7. Procedure of Reverse Auction:
 - i. Online English Reverse (no ties) Auction {Reverse Auction}:
 - **OPENING PRICE & BID DECREMENT AMOUNT:** SBI will declare its Opening Price (OP), which shall be visible to the all Contractor/ Vendors during the start of the reverse Auction. You will be required to start bidding after announcement of Opening Price and decrement amount. Also, please note that the start price of an item in online reverse auction is open to all the participating bidders. Any bidder can start bidding, in the online reverse auction, from the start price itself. Also, please note that the first online bid that comes in the system during the online reverse auction can be equal to the auction's start price, or lesser than the auction's start price by one decrement, or lesser than the auction's start price by multiples of decrement. The second online bid and onwards will have to be lesser than the L1 rate by one decrement value, or lesser than the L1 rate by multiples of the decrement value.
 - The bid decrement amount shall be specified by SBI.
 - **DURATION OF AUCTION:** English Reverse (no ties) shall be for a period of half an hour. If a bidder places a Bid in the last 5 minutes of Closing of the Auction, the auction shall get extended automatically for another 5 minutes. In case, there is no Bid in the last 5 minutes of closing of Auction, the Auction shall get closed automatically without any extension. Please note that if there are more than one item in a single auction, the auto-extension will be applicable to the entire event i.e. whenever a bidder places an acceptable bid in the last 5 minutes of the closing of the auction, the auction shall get extended automatically for another 5 minutes from the time of this bid for all the items in the auction. There are 6 extensions of 5 Min. each. However, Contractor/ Vendors are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.
8. Successful Contractor/ Vendor shall be required to submit the final prices, quoted during the English Reverse (no ties) exactly in the format issued by SBI/Service provider after the completion of Auction to SBI, duly signed and stamped as token of acceptance without any new condition other than those already agreed to before start of auction.
9. During English Reverse (no ties), if no bid is received within the specified time, SBI, at its discretion, may decide to revise Opening price / scrap the reverse auction process / proceed with conventional mode of tendering.
10. Your bid will be taken as an offer to supply. Bids once made by you, cannot be cancelled / withdrawn and you shall be bound to supply as mentioned above at your final bid price. Should you back out and not supply as per the

rates quoted, SBI shall take action as appropriate.

11. **LOG IN NAME & PASSWORD:** Each Bidder is assigned a Unique User Name & Password by ETL. The Bidders are requested to change the Password after the receipt of initial Password from ETL. All bids made from the Login ID given to the bidder will be deemed to have been made by the bidder.
12. **VISIBILITY TO BIDDER:** The Bidder shall be able to view the following on his screen along with the necessary fields during English Reverse – No ties Auction:
 - a. Leading Bid in the Auction
 - b. Bid Placed by you
 - c. Auction Opening Price & bid decrement amount
 - d. Your rank in the auction
13. **BIDS PLACED BY BIDDER:** The bid of the bidder will be taken to be an offer to execute the work. Bids once made by the bidder cannot be cancelled. The bidder is bound to execute the work as mentioned above at the price that they bid. Should any bidder back out and not make the supplies as per the rates quoted, SBI and / or ETL shall take action as appropriate.
14. **LOWEST BID OF A BIDDER:** In case the bidder submits more than one bid, the lowest bid will be considered as the bidder's final offer to execute the work.
15. At the end of the Reverse Auction, SBI will decide upon the winner. SBI's decision on award of Contract shall be final and binding on all the Bidders.
16. SBI shall be at liberty to cancel the reverse auction process / tender at any time, before ordering, without assigning any reason.
17. SBI/ETL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.
18. Other terms and conditions shall be as per your techno-commercial offers and other correspondences till date.
19. You are required to submit your acceptance to the terms / conditions / modality given above before participating in the reverse auction.

20. **AUCTION TYPE:** 1) English Reverse No Ties Auction

21. **AUCTION WINNER:** At the end of the Reverse Auction, SBI will evaluate all the bids submitted and will decide upon the winner.

22. **OTHER TERMS & CONDITIONS:**

- The Bidder shall not involve himself or any of his representatives in Price manipulation of any kind directly or indirectly by communicating with other suppliers / bidders.
- The Bidder shall not divulge either his Bids or any other exclusive details of SBI to any other party.
- SBI's decision on award of Contract shall be final and binding on all the Bidders.
- SBI along with ETL can decide to extend, reschedule or cancel any Auction. Any changes made by SBI and / or ETL, after the first posting will have to be accepted if the Bidder continues to access the site after that time.
- ETL shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause.
- ETL is not responsible for any damages, including damages that result from, but are not limited to negligence. ETL will not be held responsible for consequential damages, including but not limited to systems problems, inability to use the system, loss of electronic information etc.

N.B.

- All the Bidders are required to submit the Process Compliance Statement (Annexure II) duly signed to M/s e-Procurement Technologies Ltd, Ahmedabad.
- All the bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the online event.

(C)

ANNEXURE- I

The List of Items to be procured along with the Quantities and the Auction Start Time & lose Time is as follows:

ITEM DESCRIPTION: XYZ

Item	Quantity	Opening Prices in Rs	Bid Decrement in Rs	Opening Time	Closing Time
XYZ	Package	Will be displayed. On Auction screen	Will be displayed. On Auction screen	As above	As above

PROCESS TO DECIDE THE WINNER I.E. L-1 BIDDER:

The following example will clarify the process to be followed by the SBI.in the proposed reverse auction to decide the winner i.e. L-1:

Illustrative Example:

- The Indicative Price Bids shall be submitted by the various bidders in the following format:

S.No.	Item description	Quantity	Unit	Rate Per Unit (in Rupees) ***	Amount (In Rupees) ***
(1)	(2)	(3)	(4)	(5)	(6)
1	ABC	6	Sq. mt.	100.00	600.00
2	EFG	1	Sq. mt.	50.00	50.00
3	HIJK	2	Sq. mt.	75.00	150.00
4	MNOP	3	Sq. mt.	100.00	300.00
Total Tender amount (sum of Items 1 to 4) denoted by (A)					1100.00

*** The prices and amount mentioned in the above table are only meant for "Illustration" and the same has no relevance to the actual Item-wise Indicative Price Bid required to be quoted by the bidders.

- The SBI shall decide, within its sole discretion, the "Start Bid Price" based on the lowest online "Indicative Bid Price" received against "(A)" in the table above which may be equal to or less than the factor "A" and the "Decremental value" by which bidders shall be permitted to reduce and revise their bid, if they desire to do so.
- At the end of the reverse auction process, suppose the winner (L-1 bidder) offer their final quote against "A" (i.e. Algebraic sum under Column no. 6 in the above table) as Rs, 950.00 (denoted by "B" hereinafter), the K-Factor shall be determined as under:

$$K=(B\div A) \text{ i.e. } (950\div 1100) = 0.864$$

- The Final Items-wise rates of the L-1 bidder shall be evaluated by multiplying their Item-wise quoted rates in the Indicative Price Bid by the Factor "K" calculated as above (i.e. proportionately reducing Indicative quote for all the tender items). Accordingly, in the above illustration, the final prices of the winner shall be evaluated as under:

S.No.	Item description	Quantity	Unit	Rate Per Unit quoted in Indicative Price Bid (in Rupees)***	Factor "K"	Final Per Unit Rate (In Rupees)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (5)x(6)
1	ABC	6	Sq. mt.	600.00	0.864	518.18
2	EFG	1	Sq. mt.	50.00	0.864	43.18
3	HIJK	2	Sq. mt.	150.00	0.864	129.55
4	MNOP	3	Sq. mt.	300.00	0.864	259.09
Total amount worked out after e-reverse auction						950.00

(D) Process Compliance Statement (Annexure II)

(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,
E-Procurement Technologies Ltd. (Auction
Tiger) B-704 Wall Street - II,
Opp. Orient Club,
Nr. Gujarat College, Ahmedabad - 380
006. Gujarat State, India

Sub: Agreement To The Process Related Terms And Conditions For Online Reverse Auction for Tender for **Proposed External Paniting & Other Repires of staff Quarters at Matruchaya, Evershin Nagar, Malad west, Mumbai.**

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the Tender document

This letter is to confirm that:

- 1) The undersigned is authorized representative of the company.
- 2) We have studied the Commercial Terms and the Business rules governing the Reverse Auction as mentioned in RFP of SBI as well as this document and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We confirm that SBI and ETL shall not be liable & responsible in any manner whatsoever for we/our failure to access & bid on the e-auction platform due to loss of internet connectivity, electricity failure, virus attack, problems with the PC, any other unforeseen circumstances etc. before or during the auction event.
- 5) We also confirm that we have a valid digital signature certificate issued by a valid Certifying Authority.
- 6) We also confirm that we will mail the price confirmation & break up of our quoted price as per Annexure III & Annexure IV within 24 hours of the completion of the reverse auction and the format as requested by SBI/ETL.
- 7) We, hereby confirm that we will honor the Bids placed by us during the auction process.

With
regards,

Date:

Signature with company

seal Name:

Company / Organization:

Designation within Company /

Organization: Address of Company /

Organization:

Scan it and send to this Document on allocation@eptl.in

(E) Price Confirmation Letter (Annexure III)

(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,
E-Procurement Technologies Ltd. (Auction
Tiger) B-704, Wall Street - II,
Opp. Orient Club,
Nr. Gujarat College, Ahmedabad - 380
006. Gujarat State, India

Sub: Final Price Quoted During Reverse Auction for **Proposed External Paniting & Other Repires of staff Quarters at Matruchaya, Evershin Nagar, Malad west, Mumbai.**

Reverse Auction Date:

Dear Sir,

We confirm that we have quoted.

-

Thanking you and looking forward to the valuable order from

SBI. Yours sincerely,

For

Name:

Company:

Date:

Seal:

Scan it and send to this Document on allocation allocation@eptl.in



(E) Price break up (Annexure IV)

Price Break up as per tender document

(H) Contact Information

E-Procurement Technologies Ltd.	State Bank of India
<p>B-704, Wall Street - II, Opp. Orient Club, Nr. Gujarat College, Ahmedabad - 380 006. Gujarat State, India</p> <p>Tel.: +91 79 61200 579 580 567 569 566</p> <p>Mr.Nisarg Thakkar E-mail :nisarg.thakkar@auctiontiger.net Contact No :99044 06300</p>	<p>The AGM (P&E), LHO Maharashtra, State Bank of India, 3rdFloor, Synergy Building, Bandra Kurla Complex, Mumbai - 51.</p> <p>Officer Name :Rahul Parwate Department : P&E Contact No :022-2644 5665 E-mail :agmpe.lhomum@sbi.co.in</p>

GENERAL CONDITIONS OF CONTRACT

1.0 Definitions: -

"Contract means the documents forming the tender and the acceptance there of and the formal agreement executed between SBI (client) and the Contractor/ Vendor, together with the documents referred there in including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Bank and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

1.1 In the contract the following expressions shall, unless the context otherwise requires, have the meaning hereby respectively assigned to them.

1.1.1 'SBI' shall mean State Bank of India (client) a body Corporate created under State Bank of India Act 1955, having its Local Head Office at 3rd Floor, 'G' Block, Synergy Building, Bandra Kurla Complex, Bandra East, Mumbai 400 051 and includes the client's representatives, successors and assigns.

1.1.2 'Architect / Consultants' shall mean M/s. Dilip Kulkarni & Associates, 15/3, 2nd Metro House, Opp. Hotel Delhi Darbar, Shahid Bhagat Singh Road, Colaba, Mumbai – 400 001

1.1.3 'Site Engineer' shall mean an Engineer appointed by the Bank as their representative to give instructions to the contractors.

1.1.4 'The Contractor/ Vendor' shall mean the individual or firm or company undertaking the works and shall include legal personal representative of individual or composing the firm or company and the permitted assignees of individual or firms of company.

1.1.3 The expression 'works' or 'work' shall mean the permanent or temporary work description in the "Scope of work" and / or to be executed in accordance with the contract includes materials, apparatus, equipment, temporary supports, fittings and things of kinds to be provided, the obligations of the Contractor/ Vendor hereunder and work to be done by the Contractor/ Vendor under the contract.

1.1.4 Engineer' shall mean the representative Civil / Electrical Engineer of the SBI

1.1.5 'Drawings' shall mean the drawings prepared and issued by SBI or their Architects and referred to in the specifications and any modifications of such drawings as may be issued by the Engineer from time to time.

1.1.6 'Contract value shall mean value of the entire work as stipulated in the letter of acceptance of tender subject such additions thereto or deductions there from as may be made under the provide herein after contained.

1.1.7 Specifications' shall mean the specifications referred to in the tender and modifications thereof as may time to time be furnished or approved by the SBI

1.1.8 "Month" means calendar month.

1.1.9 "Week" means seven consecutive days.

1.1.10 "Day" means a calendar day beginning and ending at 00 Hrs. and 24 Hrs. respectively.

1.1.11 The following shall constitute the Joint Project Committee (herein under referred to as JPC) for assessing and reviewing the progress of the work on the project and to issue instructions or directions from time to time for being observed and followed by the Architects Site Engineer /PMC and other consultants / contractors engaged in the execution of the project.

- i) Dy. General Manager (Estate) of State Bank of India
- ii) State Bank of India Engineer (Civil and Electrical) in-charge of the Project, as may be nominated by the Dy. General Manager (Estate), State Bank of India
- iii) Concerned partner / proprietor of the Architects and their Resident Architect Member.

2.0 **CLAUSE**

1.0 **Total Security Deposit:** The Total Security deposit comprise of

- a) Earnest Money Deposit
- b) Initial security deposit
- c) Retention Money
- d) Additional Security Deposit

a) **Earnest Money Deposit -**

- The tenderer shall furnish EMD of ₹ 98,500/- (Rupees Ninety Eight Thousand Only) in the form of Demand draft or bankers cheque drawn in favour of SBI payable at Mumbai, on any Scheduled Bank.
- No tender shall be considered unless the EMD is so deposited in the required form.
- No interest shall be paid on this EMD. The EMD of the unsuccessful tenderer shall be refunded soon after the decision to award the contract is taken without interest.
- The EMD shall stand absolutely forfeited if the tenderer revokes his tender at any time the period when he is required to keep his tender open acceptance by the SBI. or after it is accepted by the SBI. the Contractor/ Vendor fails to enter into a formal agreement or fails to pay the initial security deposit as stipulated or fails to commence the work within the stipulated time.

b) **Initial Security Deposit (ISD)**

The amount of ISD shall be 2% of accepted value of tender including the EMD in the form of DD/PO drawn on any scheduled Bank. The ISD shall be deposited within 15 days from the date of acceptance of tender.

No interest shall be paid to the amount retained by the Bank as Security Deposit.

c) **Retention Money: -**

An amount @ 5% of the bill amount will be retained by the SBI from the bills and the same will be released by the SBI against Bank guarantee for equal amount issued by any Nationalized/ Scheduled Bank in the SBI's approved format valid for 1 year. The Bank guarantee shall be released only after completion of warranty period of 1-year provided no complaint is received or the defects have been rectified by replacing the same satisfactorily.

The successful bidder may choose to submit such Bank Guarantee to the SBI soon after commencement of work to avoid deduction of retention money from the Bills.

No advance on materials / plant / machinery or mobilization advance shall be paid in any circumstances.

Besides the ISD as deposited by the contractor in the above said manner, the Retention money shall be deducted from the running account bill at the rate of 10% of the gross value of work done by the contractor and claimed in each bill provided the total security deposit i.e. ISD plus EMD plus Retention Money shall both together not exceed 3% of the contract value. The 50% of the total security deposit shall be refunded to the contractor without any interest on issue of Virtual Completion certificate by the Architect/consultant. The balance 50% of the total security deposit shall be refunded to the contractors without interest within fifteen days after the end of defects liability period provided the contractor has satisfactorily attended to all defects, if any, in accordance with the conditions of contract including site clearance.

d) **Additional Security Deposit:**

Additional Security Deposit (ASD) / Additional Performance Guarantee (APG) shall be applicable if the bid price is below 7.5% of the estimated cost put to tender. The amount of such ASD / APG shall be difference between 92.5% of estimated cost put to tender and the quoted price.

2.0 **Language**

The language in which the contract documents shall be drawn shall be in English.

2.0 **Errors, Omissions and discrepancies**

In case of errors, omissions and/ or disagreement between written and scaled dimensions on the drawings or between the drawings and specifications etc., the following order shall apply.

- i) Between scaled and written dimension (or description) on a drawing, the latter shall be adopted.
- ii) Between the written or shown description or dimensions in the drawings and the corresponding one in the specification the former shall be taken as correct.

- iii) Between written description of the item in the specifications and descriptions in bills of quantities of the same item, the former shall be adopted:
- a) In case of difference between rates written in figures and words, the rate in words shall prevail.
- b) Between the duplicate / subsequent copies of the tender, the original tender shall be taken as correct.

4.0 **Scope of Work:**

The Contractor/ Vendor shall carryout, complete and maintain the said work in every respect strictly accordance with this contract and with the directions of and to the satisfaction of the Bank to be communicated through Architect/ Consultant. The Architect/ Consultant at the direction of the Bank from time-to-time issue further drawings and / or written instructions, detailed directions and explanations which are hereafter collectively referred to as instructions in regard to the variation or modification of the design, quality or quantity of any work or the addition or omission or substitution work. Any discrepancy in the drawings or between BOQ and / or drawings and / or specifications should be brought to the notice of SBI immediately. The removal from the site of any material brought thereon by the Contractor/ Vendor and any substitution of any other materials therefore the removal and / or re-executed of any work executed by him. The dismissal from the work of any person engaged thereupon.

5.0 i) **Letter of Acceptance:**

Within the validity period of the tender the SBI shall issue a letter of acceptance directly or through the Architect by registered post or otherwise depositing at the office of the Contractor/ Vendor as given in the tender to enter into a Contract for the execution of the work as per the terms of the tender. The letter of acceptance shall constitute a binding contract between the SBI and the Contractor/ Vendor.

ii) **Contract Agreement:**

On receipt of intimation of the acceptance of tender from the SBI, the successful tenderer shall be bound to implement the contract and within ten days there of shall sign an agreement in a non-judicial stamp paper of appropriate value.

6.0 **Ownership of drawings:**

All drawings, specifications and copies thereof furnished by the SBI are the properties of the SBI. They are not to be used on other work.

7.0 **Detailed drawings and instructions:**

The SBI through its Architects / consultants shall furnish with reasonable proper additional instructions by means of drawings or otherwise necessary for the execution of the work. All such drawings and instructions shall be consistent with contract documents, true developments thereof and reasonably inferable there.

The work shall be executed in conformity therewith and the Contractor/ Vendor prepare a detailed program schedule indicating therein the date of start and completion of various activities on receipt of the work order and submit the same to the SBI through the architect/consultant

7.0 Copies of agreement

Two copies of agreement duly signed by both the parties with the drawings shall be handed over to the Contractor/ Vendors.

8.0 Liquidated damages:

If the Contractor/ Vendor fails to maintain the required progress in terms of relevant clause under General Conditions of Contract (GCC) or to complete the work and clear the site including vacating their office on or before the contracted or extended date or completion, without justification in support of the cause of delay, he may be called upon without prejudice to any other right of remedy available under the law to the SBI on account of such breach to pay a liquidated damage at the rate of 0.50% of the contract value subject to a maximum of 5% of the contract value.

9.0 Materials, Appliances and Employees

Unless or otherwise specified the Contractor/ Vendor shall provide and pay for all materials, labour, water, power, tools, equipment transportation and any other facilities that are required for the satisfactory execution and completion of the work. Unless or otherwise specified all materials shall be new and both workmanship and materials shall be best quality. The Contractor/ Vendor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. Workman whose work or behavior is found to be unsatisfactory by the SBI he shall be removed from the site immediately.

10.0 Permits, Laws and Regulations:

Permits and licenses required for the execution of the work shall be obtained by the Contractor/ Vendor at his own expenses. The Contractor/ Vendor shall give notices and comply with the regulations, laws, and ordinances rules, applicable to the contract. If the Contractor/ Vendor observes any discrepancy between the drawings and specifications, he shall promptly notify the SBI in writing. If the Contractor/ Vendor performs any act, which is against the law, rules and regulations he shall meet all the costs arising there from and shall indemnify the SBI any legal actions arising there from.

All necessary permissions required from the local statutory bodies BMC/MMRDA/ etc. for execution of the works should be borne by the contractor without involving or putting any financial liability on the SBI. All statutory fees payable shall be borne by the SBI. All other costs of follow up and Liaisoning in this connection shall be borne by the contractor and the said costs shall be deemed to have been included in his quoted rates, taking into

account all expenses involved and shall indemnify the SBI against any liabilities in this regard.

11.0 **Setting out Work:**

The Contractor/ Vendor shall set out the work and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions, and alignment of all parts thereof and get it approved by the SBI before proceeding with the work. If at any time any error in this respect shall appear during the progress of the works, irrespective of the fact that the layout had been approved by SBI, the Contractor/ Vendor shall be responsible for the same and shall his own expenses rectify such error, if so, required to satisfaction of the SBI.

12.0 **Protection of works and property:**

The Contractor/ Vendor shall continuously maintain adequate protection of all his work from damage and shall protect the SBI's properties from injury or loss arising in connection with contract. He shall make good any such damage, injury, loss, except due to causes beyond his control and due to his fault or negligence.

He shall take adequate care and steps for protection of the adjacent properties. The Contractor/ Vendor shall take all precautions for safety and protections of his employees on the works and shall comply with all applicable provisions of Govt. and local bodies' safety laws and building codes to prevent accidents, or injuries to persons or property on about or adjacent to his place of work. The Contractor/ Vendor shall take insurance covers as per clause 24.0 at his own cost. The policy may be taken in joint names of the Contractor/ Vendor and the SBI and the original policy may be lodged with the SBI.

13.0 **Inspection of work:**

The SBI / Architect / Consultant or their representatives shall at all reasonable times have free access to the work site and / or to the workshop, factories, or other places where materials are lying or from where they are obtained and the Contractor/ Vendor shall give every facility to the SBI and their representatives necessary for inspection and examination and test of the materials and workmanship. No person unless authorized by the SBI except the representative of Public authorities shall be allowed on the work at any time. The proposed work either during its construction stage or its completion can also be inspected by the Chief Technical Examiner's Organization a wing of Central Vigilance commission.

14.0 **Assignment and subletting**

The whole of work included in the contract shall be executed the Contractor/ Vendor and he shall not directly entrust and engage or indirectly transfer, assign or underlet the contract or any part or share thereof or interest therein without the written consent of the SBI and no undertaking shall relieve the Contractor/ Vendor from the responsibility of the Contractor/ Vendor from active & superintendence of the work during its progress.

15.0 **Quality of materials, workmanship & Test**

All materials and workmanship shall be best of the respective kinds as described in the contract/BOQ and in accordance with SBI's / Architect's / Consultant's instructions and shall be subject from time to time to such tests as the SBI / Architect / Consultant may direct at the place of manufacture or fabrication or on the site or an approved testing laboratory. The Contractor/ Vendor shall provide such assistance, instruments, machinery, labor, and materials as are normally required for examining measuring sampling and testing any material or part of work before incorporation in the work for testing as may be selected and required by the SBI / Architect / Consultant.

ii) **Samples**

All samples of adequate numbers, size, shades & pattern as per specifications shall be supplied by the Contractor/ Vendor without any extra charges. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site detailed literature / test certificate of the same shall be provided to the satisfaction of the SBI / Architects / Consultants. Before submitting the sample / literature the Contractor/ Vendor shall satisfy himself that the material / equipment for which he is submitting the sample / literature meet with the requirement of tender specifications. Only when the samples are approved in writing by SBI / Architects / Consultants the Contractor/ Vendor shall proceed with the procurement and installation of the particular material / equipment. The approved samples shall be signed by SBI / Architects / Consultants for identification and shall be kept on record at site office until the completion of the work for inspection / comparison at any time. SBI / Architects / Consultants shall take reasonable time to approve the sample. Any delay that might occur in approving the samples for reasons of its not meeting the specifications or other discrepancies inadequacy in furnishing samples of best qualities from various manufacturers and such other aspects causing delay on the approval of the materials / equipment etc. shall be to the account of the Contractor/ Vendor.

iii) **Cost of tests**

The cost of making any test shall be borne by the Contractor/ Vendor if such test is intended by or provided for in the specification or BOQ.

iv) **Costs of tests not provided for**

If any test is ordered by the Architect/ Consultant which is either:

If so, intended by or provided for or (in the cases above mentioned) is not so particularized, or though so intended or provided for but ordered by the Architect / Consultant to be carried out by an independent person at any place other than the site or the place of manufacture or fabrication of the materials tested or any Government / approved laboratory, then the cost of such test shall be borne by the contractor.

16.0 **Obtaining information related to execution of work**

No claim by the Contractor/ Vendor for additional payment shall be entertained which is consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the work nor any misunderstanding or the obtaining incorrect information or the failure to obtain correct information relieve him from any risks or from the entire responsibility for the fulfillment of contract.

17.0 **Contractor/ Vendor's superintendence**

The Contractor/ Vendor shall give necessary personal superintendence during the execution the works and as long, thereafter, as the SBI may consider necessary until the expiry of the defects liability period, stated here to.

18.0 **Quantities**

The bill of quantities (BOQ) unless or otherwise stated shall be deemed to have been prepared in accordance with the Indian Standard Method of Measurements.

The rate quoted shall remain valid for variation of quantity against individual item to any extent subject to maximum variation of the contract value by 25%. The entire amount paid under Clause 20 hereof as well as amounts of prime cost and provision sums, if any, shall be excluded.

Variation exceeding 25%: The items of work executed in relation to variation exceeding 25% shall be paid on the basis of provisions of clause 21(e) hereof.

19.0 **Works to be measured**

SBI may from time to time intimate to the Contractor/ Vendor that the work is required to be measured and the Contractor/ Vendor shall forthwith attend or send a qualified representative to assist the SBI/ Architects / Consultants in taking such measurements and calculation and to furnish all particulars or to give all assistance required by any of them. Such measurements shall be taken in accordance with the Mode of measurements detail in the specifications. The representative of SBI/ Architects / Consultants shall take measurements with the Contractor/ Vendor's representative and the measurements shall be entered in the measurement book. The Contractor/ Vendor or his authorized representative shall sign all the pages of the measurement book in which the measurements have been recorded in token of his acceptance. All the corrections shall be duly attested by both representatives. No over writings shall be made in the Measurement book should the Contractor/ Vendor not attend or neglect or omit to depute his representative to take measurements the measurements recorded by the representative of the SBI/ Architects / Consultants shall be final. All authorized extra work, omissions and all variations made shall be included such measurement.

20.0 Variations

No alteration, omission or variation ordered in writing by SBI vitiates the contract. In case the SBI/ Architects / Consultants thinks proper at any stage during the progress of works to make any alteration in, or additions to or omission from the works or any. alteration in the kind or quality of the materials to be used therein, the SBI/ Architects / Consultants shall give notice thereof in writing to the Contractor/ Vendor shall confirm in writing within seven days of giving such oral instructions the contract shall alter to, add to, or omit from as the case may be in accordance with such notice but the Contractor/ Vendor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviation from any of the provisions of the contract, stipulations, specifications or contract drawings without previous consent in writing of the SBI / Architects / Consultants and the value of such extras, alterations, additions or omissions shall in all cases be determined by the SBI/ Architects / Consultants and the same shall be added to or deducted from the contract value, as the case may be.

21.0 Valuation of Variations

No claim for an extra Item shall be allowed unless it shall have been executed under the authority of the SBI/ Architects / Consultants with the concurrence of the SBI as herein mentioned. Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

- a)
 - (i) The net rates or prices in the contract shall determine the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced herein.
 - (ii) Rates for all items, wherever possible should be derived out of the rates given in the priced BOQ.
- b) The net prices of the original tender shall determine the value of the items omitted, provided if omissions do not vary the conditions under which any remaining items of Works are carried out, otherwise the prices for the same shall be valued under sub-Clause 'c' hereunder.
- c) Where the extra works are not of similar character and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items or works are carried out, then the Contractor/ Vendor shall within 7 days of the receipt of the letter of acceptance inform the SBI of the rate which he intends to charge for such items of work, duly supported by analysis of the rate or rates claimed and the SBI shall fix such rate or prices as in the circumstances in its opinion are reasonable and proper, based on the market rate.
- d) Where extra work cannot be properly measured or valued the Contractor/ Vendor shall be allowed day work prices at the net rates stated in the tender, of the BOQ or, if not, so stated then in accordance with the local day work rates and wages for the district; provided that in either case, vouchers specifying the daily time (and if required by the

SBI) the workman's name and materials employed be delivered for verifications to the Architect /consultant at or before the end of the week following that in which the work has been executed.

- e) It is further clarified that for all such authorized extra items where rates cannot be derived from the tender, the Contractor/ Vendor shall submit rates duly supported by rate analysis worked on the 'market rate basis for material, labour hire / running charges of equipment and wastages etc. plus 15% towards establishment charges, Contractor/ Vendor's overheads and profit. Such items shall, not be eligible for escalation.

22.0 **Final measurement**

The measurement and valuation in respect of the contract shall be completed within one months of the virtual completion of the work.

23.0 **Virtual Completion Certificate (VCC)**

On successful completion of entire works covered by the contract to the full satisfaction of the SBI, the Contractor/Vendor shall apply to SBI for completion certificate. the contractor shall ensure that the following works have been completed the satisfaction of the SBI:

- a) Clear the site of all scaffolding, wiring, pipes, surplus materials, contractor's labour, equipment and machinery.
- b) Demolish, dismantle and remove the contractor's site office, temporary works, structure including labour sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI not incorporated in the permanent works.
- c) Remove all rubbish, debris etc. from the site and the land allotted to the contractor the SBI and shall clear, level and dress, compact the site as required by the SBI.
- d) Shall put the SBI in undisputed custody and possession of the site and all land allot by the SBI.
- e) Shall hand over the work in a peaceful manner to the SBI.
- f) All defects / imperfections have been attended and rectified as pointed out by the Architects to the full satisfaction of SBI.

Upon the satisfactory fulfillment by the Contractor/ Vendor as stated above, the Contractor/ Vendors entitled to apply to the SBI of satisfactory completion of work. Relative to which the completion certificate has been sought, the SBI shall within fourteen (14) days of the receipt of the application for completion certificate, issue a VCC in respect of the work for which the VCC has applied.

This issuance of a VCC shall not be without prejudice to the SBI's rights and Contractor/ Vendor liabilities under the contract including the Contractor/ Vendor's liability for defects liability nor shall the issuance of VCC in respect of the works or work at any site be construction as a waiver of any right or claim of the SBI against the Contractor/ Vendor in respect of or work at the site and in respect of which the VCC has been issued.

24.0 **Work by other agencies:**

The SBI / Architect / consultant reserves the rights to use premises and any portion the site for execution of any work not included in the scope of this contract which it may desire to have carried out by other persons simultaneously and the contractor shall not only allow but also extend reasonable facilities for the execution of such work. The contractor however shall not be required to provide any plant or material for the execution of such work except by special arrangement with the SBI. Such work shall be carried out in such manner as not to impede the progress of the works included in the contract.

25.0 **Insurance of works**

25.1 Without limiting his obligations and responsibilities under the contract the Contractor/ Vendor shall insure in the joint names of the SBI and the Contractor/ Vendor against all loss of damages from whatever cause arising other than the excepted risks, for which he is responsible under the terms of contract and in such a manner that the SBI, and Contractor/ Vendor are covered for the period stipulated in clause 27 of GCC and are also covered during the period of maintenance for loss or damage arising from a cause, occurring prior to the commencement of the period of maintenance and for any loss or damage occasioned by the Contractor/ Vendor in the course of any operations carried out by him for the purpose of complying with his obligations under clause.

- a) The Works for the time being executed to the estimated current Contract value thereof, or such additional sum as may be specified together with the materials for incorporation in the works at their replacement value.
- b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.
- c) Such insurance shall be affected with an insurer and in terms approved by the SBI which approval shall not be unreasonably withheld and the Contractor/ Vendor shall whenever have required produce to the SBI / Architect / Consultant the policy of insurance and the receipts for payment of the current premiums.

25.2 **Damage to persons and property**

The Contractor/ Vendor shall, except if and so far as the contract provides otherwise indemnify the SBI against all losses and claims in respect of injuries or damages to any person or material or physical damage to any property whatsoever which may arise out of or in consequence of the execution and maintenance of the works and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto except any compensation of damages for or with respect to:

- a) The permanent use or occupation of land by or any part thereof.
- b) The right of SBI to execute the works or any part thereof on, over, under, in or through any lands.
- c) Injuries or damages to persons or properties which are unavoidable result of the execution or maintenance of the works in accordance with the contract
- d) Injuries or damage to persons or property resulting from any act or neglect of the SBI their agents, employees or other Contractor/ Vendors not being employed by the Contractor/ Vendor or for or in respect of any claims, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto or where the injury or damage was contributed to by the Contractor/ Vendor, his servants or agents such part of the compensation as may be just and equitable having regard to the extent of the responsibility of the SBI, their employees, or agents or other employees, or agents or other Contractor/ Vendors for the damage or injury.

25.3 **Contractor/ Vendor to indemnify SBI**

The Contractor/ Vendor shall indemnify the SBI against all claims, proceedings, damages, costs, charges and expenses in respect of the matters referred to in the provision sub-clause 25.2 of this clause.

25.4 **Contractor/ Vendor's superintendence**

The Contractor/ Vendor shall fully indemnify and keep indemnified the SBI. against any action, claim, or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claim made under or action brought against SBI. in respect of such matters as aforesaid the Contractor/ Vendor shall be immediately notified thereof and the Contractor/ Vendor shall be at liberty, at his own expenses to settle any dispute or to conduct any litigation that may arise there from, provided that the Contractor/ Vendor shall not be liable to indemnify the SBI. if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the SBI / Architect / consultant in this behalf.

25.5 **Third Party Insurance**

- 25.5.1 Before commencing the execution of the work the Contractor/ Vendor but without limiting his obligations and responsibilities under clause 25.0 of GCC shall insure against his liability for any material or physical damage, loss, or injury which may occur to any property including that of SBI., or to any person, including any employee of the SBI, by or arising out of the execution of the works or in the carrying out of the contract, otherwise than due to the matters referred to in the provision to clause 25.0 thereof.

25.5.2 **Minimum amount of Third Party Insurance**

Such insurance shall be effected with an insurer and in terms approved by the SBI whose approval shall not be reasonably withheld and for at least the amount stated below. The Contractor/ Vendor shall, whenever required, produce to the SBI the policy or policies of insurance cover and receipts for payment of the current premiums.

25.6 The minimum insurance cover for physical property, injury, and death is Rs.5 Lakh per occurrence with the number of occurrences limited to four. After each occurrence Contractor/ Vendor will pay additional premium necessary to make insurance valid for four occurrences always.

25.7 **Accident or Injury to workman:**

i. The SBI shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workmen or other person in the employment of the Contractor/ Vendor or any sub-Contractor/ Vendor, save and except an accident or injury resulting from any act or default of the SBI or their agents, or employees. The Contractor/ Vendor shall indemnify and keep indemnified SBI against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

ii. **Insurance against accidents etc. to workmen**

The Contractor/ Vendor shall insure against such liability with an insurer approved by the SBI during the whole of the time that any persons are employed by him on the works and shall, when required, produce to the architect / consultant such policy of insurance and receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-Contractor/ Vendor the Contractor/ Vendor's obligation to insure as aforesaid under this sub-clause shall be satisfied if the sub-Contractor/ Vendor shall have insured against the liability in respect of such persons in such manner that SBI. is indemnified under the policy but the shall require such sub-Vendor to produce to the SBI when such policy of insurance and the receipt for the payment of the current premium.

iii. **Remedy on Contractor/ Vendor's failure to insure**

If the Contractor/ Vendor fails to effect and keep in force the insurance referred to above or any other insurance which he may be required to effect under the terms of contract, then and in any such case the SBI may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the SBI as aforesaid from any amount due or which may become due to the Contractor/ Vendor or recover the same as debt from the Contractor/ Vendor.

iv. Without prejudice to the others rights of the SBI against Contractor/ Vendors. In respect of such default, the employer shall be entitled to deduct from any sums

payable to the Contractor/ Vendor the amount of any damages costs, charges, and other expenses paid by the SBI and which are payable by the Contractor/ Vendors under this clause. The Contractor/ Vendor shall upon settlement by the Insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the Insurer in respect of such damage shall be paid to the Contractor/ Vendor and the Contractor/ Vendor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

26.0 **Commencement of Works:**

The date of commencement of the work will be reckoned as the recorded date of handing over site by SBI or 15 (Fifteen) days from the date of issue of Letter of Acceptance of the Bank, whichever is later.

27.0 **Time for completion**

Time is essence of the contract and shall be strictly observed by the Contractor/ Vendor. The entire work shall be completed within a period of **120 calendar days** from the date of commencement. If required in the contract or as directed by the Architect / consultant. The contractor shall complete certain portions of work before completion of the entire work. However, the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

28.0 **Extension of time**

If, in the opinion of the Architect/consultant, the work be delayed for reasons beyond the control of the contractor, the Architect/consultant may submit a recommendation to the SBI to grant a fair and reasonable extension of time for completion of work as per the terms of contract. If the contractor needs an extension of time for the completion of work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the SBI through the Architect' Consultant in writing at least 30 days before the expiry of the scheduled time and while applying for extension of time he shall furnish the reason in detail and his justification if any, for the delays. The Architect/consultant shall submit their recommendations to the SBI in the prescribed format for granting extension of time. While granting extension of time the contractor shall be informed the period extended time which will qualify for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the provision of liquidated damages as stated under clause 8.0 of GCC shall become applicable. Further the contract shall remain in force even for the period beyond the due date of completion irrespective whether the extension is granted or not.

29.0 **Rate of progress**

Whole of the materials, plant and labour to be provided by the Contractor/ Vendor and the mode, manner and speed of execution and maintenance of the works are to be of a kind and conducted in a manner to the satisfaction of the SBI. Should the rate of progress of the work or any part thereof be at any time be in the opinion the SBI too Slow to ensure the completion of the whole of the work the prescribed time or extended time for completion, the SBI shall thereupon take such steps as considered necessary to expedite progress so as to complete the works by the prescribed time or extended time. Such communications from the SBI neither shall relieve the Contractor/ Vendor from fulfilling obligations under the contract nor he will be entitled to raise any claims arising out of such directions.

30.0 **Work during nights and holidays**

Subject to any provision to the contrary contained in the contract no permanent work shall, as herein provided, be carried on during the night or on holidays without the permission in writing of the SBI, except when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the work in which case the Contractor/ Contractor/ Vendor shall immediately advise the SBI. However, the provisions of the clause shall not be applicable in the case of any work which becomes essential to carry by rotary or double shifts in order to achieve the progress and quality of the part of the works being technically required / continued with the prior approval of the SBI at no extra cost.

All work at night after obtaining approval from competent authorities of SBI shall be carried out without unreasonable noise and disturbance.

31.0 **No compensation or restrictions of work**

If at any time after acceptance of the tender, SBI. shall decide to abandon or reduce the scope of work for any reason whatsoever and hence not required the whole or any part of the work to be carried out. SBI / Architect / consultant shall give notice in writing to that effect to the Contractor/ Vendor and the Contractor/ Vendor shall act accordingly in the matter. The Contractor/ Vendor shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the Work fully but which he did not derive in consequence of the foreclosure of the whole or part of the work.

Provided that the Vendor shall be paid the charges on the cartage of only materials actually and bona-fide brought to the site of the work by the Contractor/ Vendor and rendered surplus as a result of the abandonment, curtailment of the work or any portion thereof and then taken back by the Vendor, provided however that the SBI shall have in such cases the option of taking over all or any such materials at their purchase price or a local current rate whichever is less.

“In case of such stores having been issued from SBI stores and returned by the Vendor to stores, credit shall be given to him at the rates not exceeding those at which were originally issued to the Vendor after taking into consideration and deduction for claims on account of any deterioration or damage while in the custody of the Contractor/ Vendor and in this respect the decision of Architect / consultant shall be final.

32.0 **Suspension of work**

- i) The Contractor/ Vendor shall, on receipt of the order in writing of SBI (whose decision shall be final and binding on the Contractor/ Vendor) suspend the progress of works or any part thereof for such time and in such manner as SBI may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof for any of following reasons:
 - a) On account any default on the part of the Contractor/ Vendor, or
 - b) For proper execution of the works or part thereof for reasons other than the default the Vendor/ Contractor, or
 - c) For safety of the works or part thereof.

The Contractor / Vendor shall, during such suspension, properly protect and secure the works the extent necessary and carry out the instructions given in that behalf by the SBI / Architect / consultant.

- ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above: The Contractor/ Vendor shall be entitled to an extension of time equal to the period of every such suspension. No compensation whatsoever shall be paid on this account.

33.0 **Action when the whole security deposit is forfeited**

In any case in which under any clause or clauses of this contract, the Contractor/ Vendor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit the SBI shall have the power to adopt any of the following course as they may deem best suited to the interest of the SBI:

- a) To rescind the contract (of which rescission notice in writing to the Contractor/ Vendor by SBI shall be conclusive evidence) and in which case the security, deposit of the Contractor/ Vendor shall be forfeited and be absolutely at the disposal of SBI
- b) To employ labour paid by the SBI and to supply materials to carry out the work, or part of the work, debiting the Contractor/ Vendor with the cost of the labour and materials cost of such labour and materials (as worked out by the SBI shall final and conclusive against the Contractor/ Vendor) and crediting him with the value of the work done, in all respects in the same manner and at the same manner and at the same rates as if it had been carried out by the Contractor/ Vendor under the terms of this contract certificate of SBI as to the value of work done shall be final conclusive against the Contractor/ Vendor.

- c) To measure up the work of the Contractor/ Vendor, and to take such part thereof as shall be unexecuted, out of his hands, and to give it to another Contractor/ Vendor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original Contractor/ Vendor, if the whole work had been executed by him (The amount of which excess the certificates in writing of the SBI shall final and conclusive) shall be borne by original Contractor/ Vendor and may be deducted if any money due to him by SBI under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or sufficient part thereof.
- In the event of any of above courses being adopted by the SBI the Contractor/ Vendor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any material or entered into any engagements or make any advances on account of, or with a view to the execution of the work or the performance of the contract and in case the contract shall be rescind under the provision aforesaid, the Contractor/ Vendor shall not be entitled to recover or to be paid any sum or any work thereto for actually performed under this contract, unless, and until SBI / Architect / consultant will have certified in writing the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

34.0 **Owner's right to terminate the contract**

If the Contractor/ Vendor being an individual or a firm commit any 'Act of insolvency' or shall be adjusted an insolvent or being an incorporated company shall have an order for compulsory winding up voluntarily or subject to the supervision of Govt. and of the Official Assignee of the liquidator in such acts of insolvency or winding up shall be unable within seven days after notice to him to do so, to show to the reasonable satisfaction of the SBI that he is able to carry out and fulfill the contract, and to dye security therefore if so required by the SBI

Or if the Contractor/ Vendor (whether an individual firm or incorporated Company) shall suffer execution to be issued or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the Contractor/ Vendor.

Or shall assign or sublet this contract without the consent in writing of the SBI or shall charge or encumber this contract or any payment due to which may become due to the Contractor/ Vendor there under:

- a) Has abandoned the contract; or
- b) Has failed to commence the works or has without any lawful excuse under these conditions suspended the progress of the works for 14 days after receiving from the SBI written notice to proceed, or
- c) *Has failed to proceed with the works with such diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or has failed to remove the materials from the site or to pull down and replace work within seven days after written notice from the SBI that the said materials were condemned and rejected by the SBI under these conditions; or has neglected or failed persistently to observe and perform all or any of the acts matters or things by this contract to be observed and performed by the contactor for seven days after written notice shall have been given to the Contractor/ Vendor to observe or perform the same or has to the*

detriment of good workmanship or in defiance of the SBI to the contrary subject any part of the contract.

Then and in any of said cases the SBI may notwithstanding any previous waiver, after giving seven days' notice in writing to the Contractor/ Vendor, determine the contract, but without thereby affecting the powers of the SBI or the obligation and liabilities of the Contractor/ Vendor the whole of which shall continue in force as fully as if the contract had not been determined and as if the works subsequently had been executed by or on behalf of the Contractor/ Vendor. And, further the SBI or their employees may enter upon and take possession of the work and all plants, tools, scaffoldings, materials, sheds, machineries lying upon the premises or on the adjoining lands or roads use the same by means of their own employees or workmen in carrying on and completing the work or by engaging any other Contractor/ Vendors or persons to the work and the Contractor/ Vendor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other Contractor/ Vendor or other persons employed for complement and finishing or using the materials and plant for the works.

When the works shall be completed or as soon thereafter as convenient to the SBI a notice in writing will be given to the Contractor/ Vendor to remove his surplus materials and plants and should the Contractor/ Vendor fail to do so within 14 days after receive thereof by him the SBI sell the same by public auction, and after due publication, and shall, adjust the amount realized by such auction. The Contractor/ Vendor shall have no right to question any of the act of the SBI incidental to the sale of the materials etc.

35.0 **Certificate of payment**

The contractor shall be entitled under the certificates to be issued by the Architect / consultant to the contractor within 10 working days from the date of certificate to payment from SBI from time to time. The SBI shall recover the statutory recovering other dues including the retention amount from the certificate of payment.

Provided always that the issue of any certificate by the Architect / consultant during progress of works or completion shall not have effect as certificate of satisfaction relieve the contractor from his liability under clause.

The Architect / consultant shall have power to withhold the certificate if the work or in part thereof is not carried out to their satisfaction.

The Architect / consultant may by any certificate make any corrections required previous certificate.

The SBI shall modify the certificate of payment as issued by the architect / consultant from time to time while making the payment

The contractor shall submit interim bills only after taking actual measurements and properly recorded in the Measurement books

The Contractor shall not submit interim bills when the approximate value of work done by him is less than **Rs. 45 Lakh** and the minimum interval between two such bills shall be one month.

The final bill may be submitted by contractor within a period of one month from the date of virtual completion and Architect / consultant shall issue the certificate of payment within a period of two months. The SBI shall pay the amount within a period of three months from the date of issue of certificate provided there is no dispute in respect of rates and quantities.

The contractor shall submit the interim bills in the prescribed format with all details.

After successful completion of work, the Contractor/ Vendor shall prepare separate bills along with specified **10 years Warrantee on Rs.500/- Non-Judicial Stamp paper** for waterproofing or other similar works along with a certificate/acknowledgement certifying completion of work by SBI or their authorized representative.

No advance on materials / plant / machinery or mobilization advance shall be paid in any circumstances.

The SBI shall recover the statutory recoveries viz. TDS, retention and other dues, if any, as per contractual provisions.

The SBI shall have power to withhold the payment if the work or part thereof is not carried out to their satisfaction.

36.0 A. Settlement of Disputes and Arbitration

Except where otherwise provided in the contract all questions and disputes to the meaning of the specifications, design, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question , claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings specifications, estimates, instructions orders or these conditions or otherwise concerning the work or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:

If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to The Assistant General Manager (P&E), State Bank of India, 3rd Floor, 'G' Block, Synergy Building, Bandra Kurla Complex, Bandra (E), Mumbai 400 051

. And endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the SBI be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to **The Assistant General Manager (Premises & Estate), State Bank of India, Local Head Office** in the manner and within the time as aforesaid. The Contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to Dy. General Manager (Estate) in writing in the manner and within the time aforesaid.

B. Settlement of Disputes and Arbitration

- ii) The Dy. General Manager (Estate) shall give his decision in writing on the claims notified by the Contractor. The Contractor may within 30 days of the receipt of the decision of the Dy. General Manager (Estate) submit his claims to the conciliating authority namely the General Manager (OL&CS) for conciliation along with all details and copies of correspondence exchanged between him and the Dy. General Manager (Estate).
- iii) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the Dy. Managing Director (HR) & Corporate Development Officer of the Bank for appointment of an arbitrator to adjudicate the notified claims falling which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.
- iv) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid, and all claims of the Bank shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the Dy. Managing Director (HR) & Corporate Development Officer. It will also be no objection to any such appointment that the Arbitrator so appointed is a technically competent person not below the rank of Superintending Engineer or equivalent position in Public Sector Banks / CPSEs, CPWD, LIC, RBI etc. 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 in the manner aforesaid by the said Dy. Managing Director (HR) & Corporate Development Officer. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such Dy. Managing Director (HR) & CDO as aforesaid should act as arbitrator.

The conciliation and arbitration shall be conducted in accordance with the provisions of the Arbitration & Conciliation Act 1996 or any or any statutory modification or re-enactment thereof and the rules made there under.

It is also a term of the contract that if any fees are payable to the Arbitrator these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a Bank Officer.

It is also a term of the contract that the Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any of the arbitrators 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) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof, shall be paid and fix or settle the amount of costs to be so paid.

37.0 Water Supply:

The contractor shall make his own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following condition:

- i) That the water used by the contractor shall be fit for construction purposes to the satisfaction of the Architect / consultant.
- ii) The contractor shall make alternative arrangements for the supply of water if the arrangement made by the contractor for procurement of water in the opinion of the Architect / consultant is unsatisfactory.

37.1 The contractor shall construct temporary well / tube well in SBI land for taking water for construction purposes only after obtaining permission in writing from the SBI. The contractor has to make his own arrangements for drawing and distributing the water at his own cost. He has to make necessary arrangements. To avoid any accidents or damages caused due to construction and subsequent maintenance of the wells. He has to obtain necessary approvals from local authorities, if required, at his own cost. He shall restore the ground to its original condition after wells are dismantled on completion of work or hand over the well to the SBI without any compensation as directed by the Architect / consultant.

38.0 Power Supply:

The contractor shall make his own arrangements for power and supply / distribution system for driving plant or machinery for the work and for lighting purpose at his own cost. The cost of running and maintenance of the plants are to be included in his tender prices. He shall pay all fees and charges required for the power supply and include the same in his tendered rates and hold the owner free from all such costs. He has to obtain necessary approval from the appropriate authorities, if required.

39.0 **Treasure Trove Etc.:**

Any treasure trove, coin or object antique which may be found on the site shall be the property of SBI and shall be handed over to the bank immediately.

40.0 **Method of measurement**

Unless otherwise mentioned in the schedule of quantities or in mode of measurement, the measurement will be on the net quantities or work produced in accordance with up to date rules laid down by the Bureau of Indian Standards. In the event any dispute / disagreement the decision of the SBI shall be final and binding on the corrector.

38.0 Maintenance of registers

The contractor shall maintain the following registers as per the enclosed perform at site of work and should produce the same for inspection of STATE BANK OF INDIA /Architect / consultant whenever desired by them. The contractor shall also maintain the records / registers as required by the local authorities / Govt. from time to time.

- I) Register for secured advance
- ii) Register for hindrance to work
- iii) Register for running account bill
- iv) Register for labour

39.0 **Force Majeure**

39.1 Neither Contractor/ Vendor nor SBI shall be considered in default in performance of the obligations if such performance is prevented or delayed by events such as but not war, hostilities revolution, riots, civil commotion, strikes, lockout, conflagrations, epidemics, accidents, fire, storms, floods, droughts, earthquakes or ordinances or any act of or for any other cause beyond the reasonable control of the party affected or prevents or delayed. However, a notice is required to be given within 30 days from the happening of the event with complete details, to the other party to the contract.

39.2 As soon as the cause of force majeure has been removed the party whose ability perform its obligations has been affected, shall notify the other of such cessation and the actual delay incurred in such affected activity adducing necessary evidence in support thereof.

39.3 From the date of occurrence of a case of force majeure obligations of the party affected shall be suspended during the continuance of any inability so caused. With the caused itself and inability resulting there from having been removed, the agreed time completion of the respective obligations under this agreement shall stand extended a period equal to the period of delay occasioned by such events.

39.4 Should one or both parties be prevented from fulfilling the contractual obligations by state of force majeure lasting to a period of 6 months or more the two parties, shall mutually decide regarding the future execution of this agreement.

40.0 **Local laws, Acts Regulations:**

The Contractor/ Vendor shall strictly adhere to all prevailing labour laws including the contract labour (regulation and abolition act of 1970) and other safety regulations. The Contractor/ Vendors should comply with the provision of all labour legislation including the latest requirements of the Acts, laws, any other regulations that are applicable to the execution of the project.

- i) Minimum wages Act 1948 (Amended)
- ii) Payment of wages Act 1936 (Amended)
- iii) Workmen's compensation Act 1923 (Amended)
- iv) Contract Labour regulation and abolition act 1970 and central rules 1971 (Amended)
- v) Apprentice act 1961 (amended)
- vi) Industrial employment (standing order) Act 1946 (Amended)
- vii) Personal injuries (Compensation insurance) act 1963 and any other modifications
- viii) Employees' provident fund and miscellaneous provisions Act 1952 and amendment thereof
- ix) Shop and establishment act
- x) Any other act or enactment relating thereto, and rules framed there under from time to time.

41.0 **Accidents**

The Contractor/ Vendor shall immediately on occurrence of any accident at or about the site or in connection with the execution of the work report such accident to the architect / consultant. The Contractor/ Vendor shall also such report immediately to the competent authority whenever such report is required to be lodged by the law and take appropriate actions thereof.

46.0 The contractor's shall be bound to comply the following provision in terms of **"Restrictions imposed by the Government of India, Ministry of Finance Department of Expenditure under Rule 144 (XI) of General Financial Rules 2017 vide their order no. F. No 6/18/2019/PPD dated 23rd July 2020"** as under;

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender ONLY if the bidder is registered with the Competent Authority (registration committee constituted by the Department for Promotion of Industry and Internal Trade).
- II. 'Bidder' (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial judicial person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. 'Bidder from a country which shares a land border with India (such a country)' for this purpose means:
 - a. An entity incorporated, established or registered in such a country; or
 - b. A subsidiary of an entity incorporated, established or registered in such a country; or

- c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose beneficial owner is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The beneficial owner for the purpose of (iii) above will be as under:
1. In case of A Company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more judicial person, has a controlling interest or who exercises control through other means.
Explanation-
 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent of shares or capital or profits of the company;
 - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
 2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more judicial person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
 3. In case of an unincorporated association or body of Individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more judicial person, has ownership of or entitlement to more than fifteen percent of the property or the capital or profits of such association or body of individuals;
 4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- V. An Agent is a person to do any act for another, or to represent another in dealings with third person.
- VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.
- VII. All bidders need to submit a declaration-cum-certificate (along with evidence) in this regard as per "**Annexure Q**". Failure to submit such valid declaration-cum-Certificate will make the bid liable for rejection."

SPECIAL CONDITION OF CONTRACT

1. The Technical Bid should contain the following: -

- a. Technical Bid duly signed and sealed on each page.
- b. Banker's Cheque /Demand Draft of Earnest Money deposit.
- c. If any, The Authorization Certificate issued by the Bank's approved Principal Manufacturer only certifying that the tenderer is an Authorized Converter/Agency of their Company and they have been specifically authorized by them (i.e. OEM) to participate in the bidding process of SBI.
- d. If any, An undertaking from the Bank's approved OEM, in original, to the effect that in case their Authorized Agency/Converter is not able to perform contractual obligations for the project during the contract period, the Original Manufacturer shall own full responsibility to comply all contractual obligations relating the captioned work of SBI at their own (i.e. OEM's) risk cost and consequences.

The technical bid not accompanied by abovementioned any one or more documents shall be treated as non-responsive bid and the same shall be summarily disqualified. Moreover, such bidders shall not be allowed to participate in the submission of Indicative Price bidding followed by the E-Tendering Process. No correspondence shall be entertained in this regard.

2. **Taxes, duties, levies etc.:**

The rates quoted shall be inclusive of all taxes, duties, levies, royalties, fees, cess or charges in respect of the works but excluding GST which shall be payable over and above the approved rates as per actual. Variation of taxes, duties, fees, levies etc.(excluding GST) if any, till completion of work shall be deemed to be included in the quoted rates and no extra claim on this account in any case will be entertained. If a new tax or duty or levy or cess or royalty or octroi is imposed under as statutory law during the currency of contract the same shall be borne by the Contractor/ Vendor. **GST will however be paid by the SBI as applicable.**

3. The Contractor/ Vendor shall study the schedule of items, technical specifications, drawings, design, etc. for its sufficiency considering all the regulations of local authorities and supply company and code of standard as applicable at the time of submitting the tender and shall bring to the notice of bank, addition or deletion, if any, in writing before due date of submission of tender.

4. **Acceptance of tender**

The SBI shall have the right to reject any or all tenders without assigning any reason. They are not to bind to accept the lowest or any tender and the tenderer or tenderers shall have no right to question the acts of the SBI However adequate transparency would be maintained by the SBI.

5. **Dimensions and levels**

All dimensions and levels shown on the drawings shall be verified by the contractor and the site and he will be held responsible for the accuracy and maintenance of. All the dimensions and the levels. Figured dimensions are in all cases to be accepted and dimension shall be scaled. Large scale details shall take precedence over small scale drawings. In case of discrepancy the contractor shall ask for clarification from the Architect / consultant before proceeding with the work.

6. **Notice of operation**

The contractor shall not carry out any important operation without the Consent in with from the Architect / consultant:

7. **Construction records**

The contractor shall keep and provide to the Architect / consultant full and accurate records of the dimensions and positions of all new work and any other information necessary to prepare complete drawings recording details of the work as construction.

8. **Safety of adjacent structures and trees**

The contractor shall provide and erect to the approval of the Architect / consultant supports as may be required to protect effectively all structures and protective give to trees, which may be endangered by the execution of the works or otherwise such permanent measures as may be required by the Architect to protect the tree structures.

9. **Temporary works**

Before any temporary works are commenced the contractor shall submit at least in advance to the architect / consultant for approval complete drawings of all temporary works he may require for the execution of the works. The contractor shall carry out the modifications relating to strength, if required by the architect / consultant may require in accordance with the conditions of contract at his own cost the contractor shall be solely responsible for the stability and safety of all temporary works and unfinished works and for the quality of the permanent works resulting from the arrangement eventually adopted for their execution.

10. **Water power and other facilities**

- a) The rate quoted by the contractor shall include all expenses that are required for providing all the water required for the work and the contractor shall make his own arrangements for the supply of good quality water suitable for the construction and good quality drinking water for their workers If necessary the contractor has to sink a tube well / open well and bring water by means of tankers at his own cost

for the purpose The STATE BANK OF INDIA will not be liable to pay any charges in connection with the above

- b) The rate quoted in the tender shall include the expenses for obtaining and maintaining power connections and shall pay for the consumption charges
- c) The contractors for other trades directly appointed by the STATE BANK OF INDIA shall be entitled to take power and water connections from the temporary water and power supply obtained by the contractor However, the concerned contractor shall make their own arrangements to draw the supply and pay directly the actual consumption charges at mutually agreed rates between them. All municipal charges for drainage and water connection for Construction purposes shall be borne by the contractor and charges payable for permanent connections, if any, shall be initially paid by the contractor and the SBI will reimburse the amount on production of receipts.
- d) The SBI as well as the Architect / consultant shall give all possible assistance to the Contractor's to obtain the requisite Permission from the various authorities, but the responsibility for obtaining the same in time shall be of the contractor

11. Facilities for contractor's employees

The contractor shall make his own arrangement for the housing and welfare of his staff and workmen including adequate drinking water facilities. The contractor shall also make the arrangements at his own cost for transport where necessary for his staff and workmen to and from site of work at his own cost.

12. Lighting of works

The contractor shall at all times provide adequate and approved lighting as required for the proper execution and supervision and inspection of work.

13. Firefighting arrangements

- i) The contractor shall provide suitable arrangement for firefighting at his own cost. This purpose he shall provide requisite number of fire extinguishers and adequate number of buckets, some of which are to be always kept filled with sand and some with water this equipment shall be provided at suitable prominent and easily accessible place and shall be properly maintained.
- ii) Any deficiency in the fire safety or unsafe conditions shall be corrected by the contractor at his own cost and, to the approval of the relevant authorities. The contractor makes the following arrangements at his own cost but not limited the following:
 - a) Proper handling, storage and disposal of combustible materials and waste.
 - b) Work operations which can create fire hazards.
 - c) Access for fire-fighting equipment.

- d) Type, number and location of containers for the removal of surplus materials and rubbish.
- e) Type, size, number and location of fire extinguishers or other fire fighting equipment.
- f) General house keeping

14.Site order book

A site order book shall be maintained at site for the purpose of quick communication between the Architect / Consultant. Any communication relating to the work may be conveyed through records in the site order book. Such a communication from one party to the other shall be deemed to have been adequately served in terms of contract. Each site order book shall have machine numbered pages in triplicate and shall be carefully maintained and preserved by the contractor and shall be made available to the architect / consultant as and when demanded- Any instruction which the architect /consultant may like to issue to the contractor or the contractor may like to bring to the architect / consultant two copies of such instructions shall be taken from the site order book and one copy will be handed over to the party against proper acknowledgment and the second copy will be retained for their record.

15.Temporary fencing/ barricading

The contractor shall provide and maintain a suitable temporary fencing / barricading and gates at his cost to adequately enclose all boundaries of the site for the protection of the public and for the proper execution and security of the work and in accordance with the requirement of the architect I consultant and regulations of local authorities. These shall be altered, relocated and adopted from time to time as necessary and removed on completion of the work.

16.Site meetings

Site meetings will be held to review the progress and quality evaluation. The contractor shall depute a senior representative along with the site representative and other staff of approved sub-contractors and suppliers as required to the site meetings and ensure all follow up actions. Any additional review meetings shall be held if required by the architect/ consultant.

17.Disposal of refuse

The contractor shall cart away all debris, refuse etc. arising from the work from the site and deposit the same as directed by the architect / consultant at his own cost. It is the responsibility of the contractor to obtain from the local authorities concerned to the effect that all rubbish arising out of contractor's activities at the construction site or any other off-site activities borrow pits has been properly disposed off.

18. Contractor to verify site measurement

The contractor shall check and verify all site measurements whenever requested other specialists contractors or other sub-contractors to enable them to prepare the own shop drawing and pass on the information with sufficient promptness as will in any way delay the works.

19. Displaying the name of the work

The contractor shall put up a name board of suitable size as directed by the architect/consultant indicating there in the name of the project and other details as given by the architect/consultant at his own cost and remove the same on completion of work.

20. As built drawings

- i) For the drawings issued to the contractor by the Architect / Consultant. The architect Consultant will issue two sets of drawings to the Contractor for the items for some changes have been made. From the approved drawings as instructed by the STATE BANK OF INDIA / Architect / Consultant. The contractor will make the changes made on these copies and return these copies to the architect / Consultant for their approval. In cases revision is required or the corrections are not properly marked the architect / Consultant will point out the discrepancies to the contractor. The contractor will have to incorporated these corrections and / or attend to discrepancies either on copies as directed by the architect / consultant and resubmit to him for approval. The architect / consultant will return one copy duly approved by him.

- ii) For the drawings prepared by the contractor

The contractor will modify the drawing prepared by him wherever the changes made by the STATE BANK OF INDIA / architect / consultant. And submit two copies of such modified drawings to the architect/ consultant for approval. The architect / consultant will return one copy of the approved drawing to the contractor.

21. Approved make

The contractor shall provide all materials from the list of approved makes at his own cost and also appoint the specialized agency for the waterproofing anti-termite, aluminum doors and windows and any other item as specified in the tender. The architect/consultant may approve any make / agency within the approved list as given in the tender after inspection of the sample/mock up.

22. Procurement of materials

The contractor shall make his own arrangements to procure all the required materials for the work. All wastages and losses in weight shall be to the contractors account

23. Excise Duty, taxes, levies etc.;

The contractor shall pay and be responsible for payment of all taxes, duties, levies, royalties, fees, cess or charges in respect of the works including but not limited to sales tax, tax on works contract excise duty, and octroi, payable in respect of materials, equipment plant and other things required for the contract. All of the aforesaid taxes, duties, levies, fees and charges shall be to the contractor's account and the STATE BANK OF INDIA shall not be required to pay any additional or extra amount on this account. Variation of taxes, duties, fees, levies etc. if any, till completion of work shall be deemed to be included in the quoted rates and no extra amount on this account. Variation of taxes, duties, fees, levies etc. if any, till completion of work shall be deemed to be included in the quoted rates and no extra claim on this account will in any case be entertained. If a new tax or duty or levy or cess or royalty or octroi is imposed under as statutory law during the currency of contract the same shall be borne by the contractor.

24. Photographs:

- The Contractor shall at his own expense supply to the Architects with duplicate hard copies of large photographs not less than 25 cm. x 20 cm. (10" x 8") of the works, taken from two approved portions of each building, at intervals of not more than one months during the progress of the work or at every important stage of construction.
- In addition to above, the contractor shall be bound to submit adequate no. of site photographs along with each Running Bill for the project clearing showing major progress of work measured and claimed therein failing which the Architect/ STATE BANK OF INDIA may consider returning the Bill to the contractor and no claim for delay on this account will be entertained.

MODE OF MEASUREMENT

1. Unless otherwise stated, all pipes shall be measured net, length as laid and measured overall fittings, such as bends, junctions, etc., and given in running meters. The length shall be taken along the center line of the pipes and fittings.
2. Length of fittings viz, taps, valves, traps etc., which are paid under appropriate items shall not be re-measured under linear measurements as enumerated above.
3. Soil waste and vent pipes shall be measured along the center line of the stack including the connecting bends/tees to W.C. Pan, Nahani trap, etc. and shall be paid as enumerated above.
4. W.C. Pans, Lavatory basins, Sinks, Drain boards, Urinals, Mirrors, Glass shelf Toilet paper Holder, shall be measured by number and shall include all accessories as enumerated in detail specification under each item.
5. Unless otherwise specified, all types of taps, valves, etc., shall be measured by number and paid separately.
6. Manholes, inspection Chambers, Gully traps, etc. shall be constructed according to detail specification and measured by number and paid separately. The depth of Manhole shall mean the vertical distance from the top of the Manhole cover to the outgoing invert of the main drain channel.
7. Water meter shall include Y strainer and other appurtenances required by the local bodies and shall include brick masonry chamber, etc., as per detailed specifications and item shall be measured by number and paid for accordingly or as per schedule of quantity.

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PREAMBLE TO SCHEDULE OF QUANTITIES

Note: While quoting rates for each item of work, the contractor shall include for the following irrespective whether it has been mentioned or not in the description of the item without any extra claim / payment.

1. All unexposed surfaces of timber (any variety) used shall be treated with necessary coats of wood preservative.
2. All exposed surfaces of timber (any variety) shall also have necessary coat of wood primer / putty and paint / polish as per description in the item.
3. Before making bulk quantities , the contractor shall make each of the item as sample and get it approved in writing from the consultants minor modification if and as suggested by the consultant the same shall have to be incorporated without any extra cost.
4. All exposed edges of ply board shall be fixed with cedar / teak wood lipping.
5. All fabrics / leatherite to be used shall cost Rs. 360/ - per meter unless otherwise specified in the item.
Difference in cost for approved sample shall be adjusted accordingly.
6. For furniture item where required whether mentioned or not shall be include providing an fixing of Brass / Power coated handles /knobs multipurpose locks, mini tower bolts ,ball catchers, hinges, screws and sliding rails etc.
7. Back of all storage, cabinets, and consoles shall be in 6mm commercial ply only.
8. Thickness of laminates to be used shall be 1 mm except where specified.
9. Ant termite treatment is to provide for all wood / board /ply used in the storage.

SECTION – A: MATERIALS

- 1) Material shall be of best approved quality obtaining and they shall comply with the respective Indian Standard Specification.
- 2) Samples of all materials shall be got approved before placing order and the approved sample shall be deposited with the Architect.
- 3) In case of non-availability of materials in metric sizes the nearest size in FPS units shall be provided with prior approval of the Architects for which neither extra will be paid nor shall any rebates be recovered.
- 4) If directed, materials shall be tested in any approved Testing Laboratory and the test certificates in original shall be testing including charges for repeated tests, if ordered, shall be borne by the Contractor.
- 5) It shall be obligatory for the Contractor to furnish certificate, if deemed by the Architects, from manufacturer or the material supplier that the work has been carried out by using their material and as per their recommendations.
- 6) All materials supplied by the Employer / any other Specialist Firms shall be properly stored and the Contractor shall be responsible for its safe custody until they are required on the works and till the completion of the work.
- 7) Unless otherwise shown on the Drawings or mentioned in the "Schedule of Quantities" or special specification, the quality of materials, workmanship, dimensions, etc., shall be as specified as hereunder.
- 8) All equipment and facilities for carrying out field tests on materials shall be provided by the Contractor without any extra cost.

a) **Cement :**

Cement shall comply in every respect with the requirements of the latest publications of IS: 269 and unless otherwise specified ordinary Portland Cement shall be used.

The weight of ordinary Portland Cement shall be taken as 1440 kg. per cu.m. (90 lbs. per C.Ft.). Cement shall be measured by weight and in whole bags, and each undisturbed and sealed 50 kg. bag being considered equivalent to 35 liters (1.2 c.ft.) in volume care should be taken to see that each bag contains full quantity of cement. When part bag is required cement shall be taken by weight or measured in measuring boxes.

No other make of cement but that approved by the Architects will be allowed on works and the source of supply will not be changed without approval of Architect in writing. Test certificates to show that cement is fully complying the specifications shall be submitted to the Architects and

notwithstanding this, the Architect may at his discretion, order that the cement brought on site and which he may consider damaged or of doubtful quality for any reason whatsoever, shall be re-tested in an approved testing laboratory and fresh certificates of its soundness shall be produced.

Cement ordered for re-testing shall not be used for any work pending results of re-test. Cement shall be stored in weather-proof shed with raised wooden plank flooring to prevent deterioration by dampness or intrusion of foreign matter. It shall be stored in such a way as to allow the removal and use of cement in chronological order of receipt i.e., first received

being used first used. Cement deteriorated and or clotted shall not be used on the work but shall be removed at once from the site. However, allowing use of warehouse set cement shall be determined by the Architects.

b) **Lime** :

Lime shall comply in every respect with the requirements of IS: 712 and shall be made from approved line stone or Kankar and properly burnt. It shall be free from excess of unburnt Kankars or lime stone ashes or other extraneous materials and shall be stored in weather-proof sheds. Lime which has damaged by rain, moisture, or air slacking shall not be used but shall be removed from the site of work forthwith. Lime shall be slacked with fresh water and screened through appropriate screens and stored and used within 14 days provided it is protected from drying out.

Field tests according to IS: 1624 shall be carried out from time to time to determine the quality of lime.

c) **River Sand** :

River sand shall confirm to IS: 383 and relevant portion of IS: 515. It shall pass through pass through a I.S. sieve 4.75 mm. (3/16 B.S.) test sieve, leaving a residue not more than 5%. It shall be from natural source i.e. only river or crushed stone screenings, if allowed, chemically inert clean, sharp, hard durable, well graded and free from dust, pebbles, clay, shale, salt, organic matter, loam , mica or other deleterious matter. The sum percentages of all deleterious substances to acceptable limits. River sand shall not contain any trace of salt and it shall be tested and river sand containing any trace of salt shall be rejected.

The fine aggregate i.e. river sand for concrete shall be graded within limits as specified in IS: 383 and the fineness Modules may range between 2.60 to 3.20.

The fine aggregate shall be stacked carefully on a clean hard dry surface so that it will not get mixed up with deleterious foreign materials. If such a surface is not available a platform of planks or corrugated iron sheets or brick floor or a thin layer of lean concrete shall be prepared.

d) **Fine & Coarse Aggregate** :

Shall consist of crushed or broken stone 95% of which shall be retained on 4.75 mm. IS tests sieve. It shall be obtained on crushing Granite, Quartzite, Trap, Basalt, or similar approved stones from approved quarry and shall confirm to IS:383 and IS 515. Fine & Coarse aggregate shall be chemically inert when mixed with cement and shall be cubical in shape and be free soft, friable, thin, porous, laminated or flaky pieces. It shall be free from dust and any other foreign matter.

Gravel / Shingle of desired grading may be permitted as a substitute in part or full in plain cement concrete if the Architect is otherwise satisfied about the quality of aggregate. For all the R.C.C. works the size of coarse aggregate shall be 20 to 25 mm. and fine aggregate shall be 10 to 15 mm.

e) **Reinforcement** :

Reinforcement shall be of mild steel tested quality confirming to I.S. : 432-1966 and any other I.S. applicable or deformed bar confirming to IS:1786 and Is:1139 or hard drawn Fe 415 (Tor Steel) steel wire fabric confirming to IS:1566;1967.

All finished bars shall be free from cracks, surface flaws, laminations, jagged and imperfect edges.

f) **Bricks** :

Bricks shall generally comply with IS:1077 except in size which shall be classified as 1st and 2nd class. 1st class bricks shall be the best quality locally available table moduled, well burnt but not over burnt, have plain rectangular faces with parallel sides and sharp right angled edges, have a fine compact and uniform texture. The bricks shall be free from cracks, chips, flaws, stones or subsequent to soaking in water. It shall emit a clear ringing sound on being struck and shall not absorb water more than 20% by weight. Common building bricks shall have a compressive strength of 35 kg. / sq. unless otherwise specified for first class bricks.

g) **Neeru** :

Shall be made of Class "C" Lime (i.e. pre fat lime) as mentioned in IS: 712. It shall be slaked with fresh water then sifted and reduced to a thick paste by grinding in a mill. Neeru thus prepared shall be kept moist until used and no more than that can be consumed in 15 days shall be prepared at time.

h) **Surkhi** :

Shall be made by grinding well burnt bricks, brick bats, burnt clay balls, etc., the brick etc., to be used shall be prepared from selected clay. The quality shall confirm to IS:1344.

Bricks bats, etc., shall be ground in mechanical disintegrator to a fine powder passing through IS Sieve No. 9 (2.36 mm.) with a residue not exceeding 10% by weight.

Surkhi for lime surkhi plaster shall be ground to fine powder in a mortar mill to pass through IS Sieve 150 micron (No. 100)

Surkhi shall be stored in a weather-proof shed on a brick pave platform.

i) **Water** :

Water for mixing cement / lime / surkhi mortar or concrete shall not be salty or brackish and shall be clean, reasonably clear and free from objectionable quantities of silt and traces of oil, acid and injurious alkali, salts, organic matter and other deleterious materials which will either weaken the mortar or concrete or cause efflorescence or attack the steel in reinforced cement concrete. Water shall be obtained from sources approved by the Architect. Potable water is generally considered satisfactory for mixing and curing concrete, mortar masonry, etc., where water other than main source is used this shall be tested in an

approved testing laboratory to establish its suitability. All charges connected therewith shall be borne by the Contractor.

j) **Timber** :

Timber shall be well seasoned and of the best quality Indian Teak of specified species viz., Dandeli, Balarshah, Melabar, C.P.

Timber shall be considered as well seasoned, if its moisture content does not exceed the following limits.

a) Timber for frames	14%
b) Timber for planking, shutters, etc.	12%

The moisture content of timber shall be determined according to method described in paragraphs 4 of IS:287 for Maximum permissible moisture content of timber used for different purpose in different climatic zones.

In measuring cross-sectional dimensions of the frame pieces tolerance upto 1.5 mm. shall be allowed for each planed surface.

k) **Superior quality Indian Teak Wood** :

Superior quality Indian Teakwood means Dandeli, Balarshah, and Malabar Teak. It shall be of good quality and well seasoned. It shall have uniform colour, reasonably straight grains, and shall be free from large. Loose, dead knots, cracks, shakes, warp, twists, bends, borer holes, sap-wood or defects of any kind. No individual hard and should knot shall be more than 1 cm. in diameter and aggregate areas of all knots shall not exceed ½% of area of the piece. There shall not be less than 6 growth rings per 2.5 cm. width.

l) **Ist Class Indian Teakwood** :

1st Class Indian Teakwood means C.P. and Bulsar teak of good quality and well seasoned. It shall have uniform colour, reasonably straight grains and shall be free from large. Loose dead knots, cracks, shakes, warp, twists, bends, sap-wood or defects of any kind. No individual hard and should knot shall be more than 2.5 cm. in diameter and aggregate areas of all the knots exceed 1% areas of the piece. There shall not be less than 5 growth tings per 2.5 cm. width.

m) **IIInd Class Indian Teakwood** :

Shall be similar to first class Indian teak wood except that knot upto 4 cm. diameter and aggregate area of all knots upto 1 ½% of the area of the piece shall be allowed. There shall not be sapwood upto 15% is allowed.

n) **Flush Doors** :

All flush doors shall be solid core exterior grade unless otherwise specified and it shall generally conform to IS:2202 and shall be fabricated as described under specification.

o) **Steel Windows and Doors** :

Steel windows and doors shall be fabricated of steel sections conforming to IS:226. They shall conform to IS 1038. Unless otherwise specified the details of construction etc., shall be as described under specification.

p) **Floor Tiles** :

Designer pre-cast concrete tiles and interlocking paver block, plain cement tiles, chequered tiles, mosaic tiles terrazzo tile shall conform to IS:1237. For neutral shade tiles grey cement shall be used. Tiles shall be compacted by mechanical vibration and hydraulically pressed. It shall be of choice shade and shall have desired pattern of chip distribution. The sizes of chips to cement in terrazzo or mosaic floor shall be as specified in IS:1237. The size and thickness of tiles shall be as approved by the Architect.

q) **Ceramic / Vitrified Tiles** :

White or coloured glazed tiles shall comply with IS:777 or relevant or latest I.S. code. It shall be from an approved manufacturer and shall be flat and true to shape. They shall be free cracks, crazing, spots, chipped edges and corners. The glazing and colour shall be uniform shade and unless otherwise specified the tiles shall be 6 mm. thick.

r) **Marbles** :

Marble slabs for flooring, dado veneering etc., shall be of kind specified in the item such as white or pink, Makrana, Chittor black, Bhanslana black, Jaisalmer yellow, Baroda green, Patiala (Pepsu) grey, etc., Marble from which slabs are made shall be selected quality, hard, sound dense and homogenous in texture and free from cracks, weathering, decay and flaws. Before starting the work the contractor shall get the sample of Marble slabs approved by the Architect.

The slabs shall be machine cut and machine polished.

s) **Kotah / Shahbad / Cudappa / Granite** :

Shall be of selected quality, hard, sound, dense, and of homogenous texture, free from cracks decay, weathering and flaws. Stone slabs shall be of uniform colour as approved by the Architect. They shall be machine cut and machine polished where specified and shall conform to the required size. Thickness shall be specified in the respective items.

t) **Glazing :**

Glass used for glazing shall be float glass of best quality, free from flaws, specks bubbles and shall be 2.9 mm. thick upto 0.60 x 0.60 mm. size and for larger size it shall be 4 mm. thick unless otherwise specified in the Schedule of Quantities.

The following type of glasses shall be used:-

- | | |
|------------------------|---------------------------------------------------------------|
| 1) For Office Building | .. Clear glass or as specified in the Schedule of Quantities. |
| 2) Office (toilets) | Clear or frosted |
| 3) Partitions | Frosted |

u) **Asbestos Roofing & rain Water Pipes :**

All Asbestos pipes and fittings shall comply with IS:459 and shall be free from cracks, chipped edges of corners and other damages.

v) **MPI. Sheets :**

MPI. Sheets shall be of a gauge specified in the description of the item and shall conform to the IS:277. The sheets shall be free from cracks, spilt edges, twists, surface flaws, etc. They shall be clean bright and smooth. Galvanising shall be uninjured and the perfect condition. The sheet shall show no sign of rust or white powdery deposits on the surface. The corrugations shall be uniform in depth and pitch and parallel.

w) **Paints :**

Lime for lime wash, dry distemper, oil bound distemper cement primer, oil paint, enamel paint, flat oil paint, plastic emulsion paint, anti-corrosive primer, red lead, water-proof cement paint and exterior grade Acrylic Emulsion paint, cement paint, sand-tex matt shall be from an approved manufacturer and shall conform to the latest Indian Standard for various paints. Ready mixed pains as received from the manufacturer without any admixture shall be used, except for addition of thinner, if recommended by the manufacturer.

x) **Mortar :**

Lime Surkhi Mortar :

Lime and surkhi shall confirm to the specifications. It shall be composed of approved lime and surkhi in proportion of 1 lime to 2 surkhi mixed thoroughly. The ingredients shall be accurately gauged by measure and shall be well and evenly mixed together on a platform and water added to make it homogenous. When large quantities are required the mortar shall be mixed in a mechanical grinder.

Cement Mortar :

Cement mortar shall be of proportions specified for each type of work in the schedule. It shall be composed of Portland Cement and sand. The ingredients shall be accurately gauged by measure and shall well and evenly mixed together in a mechanical pan mixer, care being taken not to add more water than is required. No mortar that has begun to set shall be used. River sand shall be used unless otherwise specified.

If hand mixing is allowed, then it shall be done on pucca water-proof platform. The gauged materials shall be put on the platform and mixed dry. Water will then be added and the whole mixed again until it is homogenous and of uniform colour. Not more than one bag of cement shall be mixed at one time and which can be consumed within half an hour of its mixing.

Composite lime, cement, sand mortar :

The mortar shall be of proportions specified for each type of work in the schedule of quantities. It shall comprise of Portland cement, lime and sand. Lime shall be measured in gauge boxes similar to one used for measuring cement and sand to the proportion specified and sufficient water then added to it to form a thick slurry thus obtained shall then be added to dry cement and sand mixture and thoroughly mixed to make a workable homogenous mortar of uniform colour by adding more water if necessary. Mechanical mixers shall generally be used for mixing such mortars. If hand mixing is allowed it shall be done on pucca platform.

SECTION – B: MODE OF MEASUREMENTS

The method of measurement for various items in the tender shall be generally in accordance with the IS: 1200 subject to the items for which the mode of measurements are not given under or elsewhere in the tender.

1) **Reinforcement:**

Shall be measured in lengths of bars as actually placed in position on standard weight basis; no allowance being made in the weight for rolling margin, Wastage and binding wire shall not be measured, authorised overlaps and spacers shall only be measured.

Standard weight for steel reinforcement bars

Diameter of the steel bars in mm.	6	8	10	12	16	20	25	32
Weight of steel bars in kg per Rmt.	0.22	0.39	0.62	0.89	1.58	2.47	3.85	6.31

2) **Brick Work** :

Except walls of half-brick thickness or less, all brick work shall be measured in cubic meters.

Thickness of Wall:

Brick walls upto and including three bricks in thickness shall be measured in multiples of half-brick which shall be deemed to be inclusive of the mortar joints. Where fractions on half-bricks occur due to architectural or other reasons, the measurement shall be taken half-bricks.

For walling, which is more than three bricks in thickness, the actual thickness of the wall be measured to the nearest centimeter.

Honey-combed brick walling shall be given in square meters stating the thickness of wall and the pattern of honey-combing. Honey comb openings shall not be deducted.

Deductions:

No deductions or additions shall be made on any account for

- a) Ends of dissimilar materials (i.e. joists, beams, lintels, lofts, grinders, rafters, purlins, trusses, corbels, steps, etc.) upto 500 square centimeters in section.
- b) Opening upto 0.1 sq. in section.
- c) Wall plates, bed plates and bearing of slabs, chajjas and the like where the thickness does not exceed 10 cm. and the bearing does not extend over the full width of the wall.

3) **Wood Work:**

All work shall be measured net as fixed. No extra measurement will be given for shape, joints, splayed meeting styles of doors and windows and shall be measured in unit of square meters.

Area over the face inclusive of exposed frame thickness (excluding width of cover mould) shall be measured in case of door, windows and ventilators when frames are included in the item. Portions embedded in masonry or flooring shall not be measured. Where frames are measured separately mode of measurement shall be as per C.P.W.D. practice or IS:1200.

4) **Steel doors, windows, ventilators, louvers:**

Clear area over one face inclusive of exposed frame shall be measured. Holdfasts or portions embedded in masonry or flooring shall be measured.

5) **Steel rolling shutters and rolling grilles:**

Clear width between side jambs and clear height between floor and bottom of lintel / beam shall be measured. Hood shall not be measured separately. The rate should be inclusive of the cost of hood.

6) **Flooring, Skirting, Dado:**

Flooring shall be measured from skirting to skirting and where the wall surface are plastered or provided with Dado, it shall be measured from plaster to plaster or dado to dado.

7) **Plastering and Pointing:**

All plastering and pointing shall be measured in square meters unless otherwise described.

Net are of surface plastered shall be measured. No deductions will be made for ends of joints, beams, posts, etc., and opening not exceeding 0.5 sq.m. each and no additions shall be made neither for reveals, jambs, soffits, sills, etc. of these openings nor for finishing the plaster around openings, ends, of joists, beam and posts, etc.

Full deductions will be made for door, window and ventilator from each side with adding jambs for door, window and ventilator.

8) **Painting, White washing, colour washing and distempering:**

All painting work shall be measured in square meters.

Net are of surface painted shall be measured. No deductions will be made for unpainted surfaces of ends of joists, beams, posts etc., and opening not exceeding 0.5 sq.m. each and no additions shall be made for reveals, jambs, soffits, sills, etc., of these openings.

Full deductions will be made for door, window and ventilator from each side with adding jambs for door, window and ventilator.

No coefficient will be considered for painting over sponge finished or sandfaced plaster.

The following multiplying factors for obtaining equivalent areas shall be adopted.

No.	Description of works	How measured	Multiplying Factor
a)	Wood paneled framed ledged, braces and battened.	Measured flat (not girthed) including frame, edges, chawkats, cleats, etc., shall be deemed to be included in the item.	1 1/8 (for each side).
b)	Wood flush part paneled and part.	-- do -- glazed or gauzed.	1 (for each side).
c)	Fully glazed or gauzed or glazed louvered ventilators / window / door.	-- do --	1/4 (for each side).
d)	Fully venetioned of	-- do --	1 1/2 (for each side).

	louvered (not with glazing).		
e)	Weather boarding.	Measured flat (not grithed supporting frame work shall not be measured separately).	1 1/8 (for each side).
f)	Trellis (or Jaffri) work one way or two way.	Measured flat overall, no deduction shall be made for opening (supporting members shall not be measured separately)	1 (for each side).
g)	Guard bars, balustrades, gratings, grille railings, grille partitions, etc.	--- do ---	1 (for painting all over).
h)	M.S. gates & open palisades fencing, door including standards, braces, rails, stays, etc.	See not below	1 (for painting over all).
i)	Steel rolling / alligator type shutters.	Measured flat over jambs, guides, bottoms, rails and locking arrangement etc. shall be deemed to be included in the item.	1 1/4 (for each side).
j)	Carved or enriched work.	Measured flat.	2 (for each side).
k)	Fully glazed or gauzed steel windows or partitions.	Measured flat.	1 1/4 (for all over).

Note :

The height shall be taken from the bottom of the lowest rail, if the palisades do not go below it (or from the lower end of the palisades, if they project below the lowest rail) upto the top of the palisades, but not upto the top of the standards, if they are higher than the palisades. Similarly for the gates, depth of roller shall not be considered while measuring the height.

Area painted over sand cement plaster, sponge finished / sand faced plaster / rough cast plaster area painted without considering any coefficient for painting over sand faced plaster

BRICK AND STONE MASONRY

General :

All brick work should be carried out as shown on the drawings with setbacks, projections, cuttings, toothings, etc. Wherever the proportion of cement mortar has not been specifically mentioned, cement mortar in the proportion of 1:6 shall be used. Flat bricks arches shall be provided wherever required without any extra cost. Brick work shall be kept wet while in progress, till mortar has properly set. On holidays or when work is topped, top of all unfinished masonry shall be kept wet. Should the mortar become dry, white or powdery, for want of curing work shall be pulled down and rebuilt at the Contractor's expenses.

Brick Work 1stClass :

Bricks shall be thoroughly cleaned, well wetted and soaked for atleast twelve hours in fresh water before being used on the work. Bricks shall be of locally, available best quality.

English bond shall be used throughout in walling. A good bond shall be maintained throughout the work, both laterally and transversely. In walling, the courses shall be kept perfectly horizontal and in plumb with the frogs facing upwards. Vertical joints shall not exceed 10 mm. thickness and shall be full of mortar. No broken bricks shall be used except as closers. After day's work all joints shall be raked to 12 mm. depth to provide for proper key to plastering.

Mortar used shall be as specified in respective items and every third course of brick work shall be flushed with mortar grout.

Whole of the masonry work shall be brought up at one uniform level throughout the structure; but where breaks are unavoidable, joints shall be made in good long steps. All junctions of walls and cross walls shall be carefully bounded into the main walls. The rate of laying masonry may be upto a height of 60 cm. per day if cement mortar is used and 45 cm. per day if lime mortar is used. Greater heights may be built only if permitted by the Architect.

During rains, the work shall be carefully covered to prevent mortar from being washed away. Should any mortar or cement be washed away, the works shall be removed and rebuilt at the Contractor's expenses.

Bricks Work 2ndClass :

Shall be similar to 1st class brick work except that 2nd class bricks shall be used and joints shall be 10 mm. to 12 mm. thick.

Half Brick Masonry :

Shall be set in cement mortar as specified. Hoop iron bands of 2.5 cm. x 0.16 (1" x 1/16") shall be embedded in every fourth course with thick mortar band or 2 Nos. 6 mm. (1/4") dia. bars shall be used in every sixth course otherwise as specified under item.

WOOD WORK

Timber used shall conform to specifications described under Materials, Doors, Windows, Ventilators, walls, Paneling, False Ceiling, etc., shall be in accordance with Architect's drawing in every detail and all joiner's work shall be accurately set out, framed and finished in a proper workman-like manner, frames of doors, windows and ventilators etc. and shutter styles and rails shall be best solid teak of quality specified in the schedule of quantities. The scantlings shall be accurately planed smooth, rebates, rounding and mouldings shall be made as shown on the drawings, patching or plugging of any kind shall not be allowed. Joints shall be simple, neat and strong. Framed joints shall be coated with suitable adhesive like glue or synthetic resin before the frames are put together. All mortice and tenon joints shall be fit and fully and accurately without wedging or filling. The joints shall be pinned with hard wood or bamboo pins of 10 mm. to 12 mm. dia. or rust resisting star shaped metal pins 8 mm. after the frames are put together and pressed in position by means of press. The frames are put together and pressed in progress of work by suitable boxing. All portions of timber abutting against or embedded in masonry or concrete shall be treated against termites by giving a coat of any approved wood preservative.

Unless otherwise specified all doors frames shall have six M.S. flat holdfasts and window frames shall have four holdfasts shall be provided to the ventilators, if directed. Size of holdfasts shall be 30 mm. x 40 mm. x 6 mm. M.S. flat bent to shape worth fish tail end and it shall be fixed to frame with sufficient number of screws as directed. When door / window frames are to be fixed to R.C.C. column or R.C.C. wall, holdfasts shall be substituted by suitable arrangements such as coach crews, rawl bolts etc., to secure frames to R.C.C. column or R.C.C. wall as directed by the Architect.

Frames and shutter shall not be painted or erected before being approved by Architect.

Paneled Shutter :

Panels shall be of pattern and size as shown on the drawings or as directed by Architect. Solid teak wood panels shall be in one piece wherever possible. Where two or more pieces are permitted, they shall be of equal width. Panels shall be framed into grooves made in styles and rails to the full depth of groove and faces shall be closely fitted to sides of groove.

Where panels specified are block board, it shall be solid core with teak internal lipping and of approved make.

Partly paneled and partly glazed shutter shall be similar to paneled shutters except that such parts as are directed shall be glazed with plain or ground glass as specified. Styles and rails shall be rebated 12 mm. to receive glass. Sash bars shall be moulded and rebated and mitered on sides to receive the glass which shall be fixed with putty and beads.

Hardware Fittings :

Unless otherwise specified all hardware fittings and fixtures shall be supplied by the employer free of charge. However, the cost of fixing fittings shall be included in the rate quoted. The fixing shall be done in the best workman-like manner in accordance with the manufactures specifications. The Contractor shall be held responsible for working of all moving parts dependent on proper fixing. He will also be responsible for any breakage due to negligence during fixing or lack of protection before the building is handed over. The Contractor shall also take delivery of all hardware fittings etc., as and when supplied and arrange for safe storage etc. Hardware required for fixing false ceiling, wall paneling etc., shall be arranged by the Contractor at his cost. Apart from the hardware fittings required for the joinery items, the Contractor shall have to fix all other items of hardware fittings to be supplied by the employer viz. coat / picture hooks, numerals, letters to denote buildings, hanging rods etc., as directed by the Architects. Painting and polishing of wood work shall be as per specifications under respective heads.

Flush Doors:

All flush doors shall be solid core unless otherwise specified. It shall conform to the relevant specifications of I.S. 2202 and shall be obtained from approved manufactures. The finished thickness of the shutter shall be mentioned in the items. Face veneers shall be of the pattern and colour approved by the Architect and an approved sample shall be deposited with the Architect for reference.

The solid core shall be wood laminae prepared from battens of well seasoned and treated good quality wood having straight grains. The battens shall be of uniform size of about 2.5 cm. width. These shall be properly glued and machine pressed together, with grains of each piece reversed from that of adjoining one. The longitudinal joints of the battens shall be staggered and no piece shall be less than 50 cm. in length. Alternatively, the core shall be of solid teak particle board. Edges of the core shall be lipped internally with 1st Class teak wood battens of 4 cm. (1.5") minimum depth, glued and machine pressed along with the core.

The core surface shall then have two or three veneers firmly glued on each face. The first veneer (called cross band) shall be laid with its grains at right angles to those of the core and the second and the third veneers with their grains parallel to those of the core. The under veneers shall be of good quality, durable and well seasoned wood. The face veneers shall be of minimum 1 mm. thickness and of well matched and seasoned 1st class teak, laid along with grains of the core battens. The combined thickness of all the veneers on each face shall not be less than 4 mm. Thermosetting synthetic resin conforming to I.S. 303 or moisture-proof plywood grade MPF.I. shall be used in manufacture.

In addition to internal lipping all doors shall have external lipping all round.

STEEL DOORS, WINDOWS, VENTILATORS ROLLING SHUTTER, M.S. GRILLES ETC.

Steel used in the manufacture of rolled steel sections shall not have more than 0.060 per cent of sulphur and 0.065 per cent of phosphorus. The carbon content shall not exceed 0.30 per cent and shall be of weldable quality. In all other respects, the rolled steel sections shall conform to I.S. 226-1955 and I.S. 1977-1962.

Frames shall be square and flat. Both the fixed and openable frames shall be constructed of sections which have been cut to length, mitred and electrically welded at corners. Sub-dividing bar units shall be tenoned and rivetted into the frames. All frames shall have the corners welded to a true right angle and welds shall be neatly cleaned off. Couplings, moulding and weather bar shall be provided as directed by the Architects.

Outer frames shall be provided with fixing holes centrally in the web of the sections and fixing screws and lugs shall be used for fixing the frame to masonry. Mastic cement shall be used for making the joints watertight.

Hinges shall be strong projecting type. If directed friction type hinges shall be used in which case windows shall not be fitted with peg stays.

Projecting type hinged shutter shall be fitted with bronze or brass peg stays, 30 cm. long with peg and brackets welded / reivetted to the frame or as sated under item.

All windows shall be provided with handles of brass or bronze or otherwise as stated under them.

Top hung ventilators shall be fixed with plain hinges rivetted / welded to the fixed frame. A brass or bronze peg stay 30 cm. long as in windows shall be provided or as stated under item.

Center hung ventilators shall be hung on two pairs of brass or leaded tin bronze cup pivots rivetted to the inner and outer frames of the ventilators to permit the ventilators to swing through an angle of approximately 85. The opening position of the ventilator shall be so balanced to keep it open at any desired angle under normal weather conditions. A bronze spring catch shall be fitted in the center of the top bar of the ventilator for the operation of the ventilator. This spring catch shall be secured to the frame with brass screws and shall close into a mild steel malleable iron catch plate rivetted or welded to outside of the outer ventilator frame bar. A brass cord pulley wheel in mild steel or malleable iron brackets shall be provided along with card eye.

The windows and ventilators shall be painted. All the steel surfaces shall be thoroughly cleaned free of rust, scale or dirt and millscale by picking or phosphating and before erection painted with one coat of approved primer and after erection painted with two finishing coats of synthetic enamel paint of approved shade and quality.

Glazing of specified thickness shall be provided on the outside of frames and unless otherwise specified, metal beading of approved shape, and section shall be used for fixing glasses. Special metal sash putty of approved make shall be used, if directed.

Rolling Shutters :

Shall be of approved manufacture suitable for fixing in the position ordered i.e. outside, inside, on or below lintel or between jambs. Shutters upto 12 sqm.(130 Sq.ft.)in area shall be manually operated or Push Up type while bigger sizes shall be of reduction gear type mechanically operated chain or handles.

These shall be consist of 8 gauge or as specified with 75 mm. (3") M.S. laths of best quality mild steel strips machine rolled and straightened with an effective bridge depth of 16 mm. (5/8") and shall have convex corrugation. These shall be interlocked together throughout their entire length with end locks. These shall be mounted on specially designed pipe shaft.

The spring shall be of approved make coiled type. These shall be manufacture from tested high tensile spring steel wire or strip of adequate strength to balance the shutters in positions. The spring pipe, shaft etc., shall be supported on strong M.S. or malleable cast iron brackets.

Both the side guides and bottom rail shall be jointless and of single piece of pressed steel. Top cover of shaft, spring etc., shall be of the same material as that of lath. For rolling shutter with wicket-gate, night latch shall be provided free of cost. The shutter and cover etc., shall be painted with one coat of anti-corrosive paint and two coats of synthetic enamel paint of approved quality and shade.

Collapsible Steel Gate :

It shall consist of vertical double channels at 10 cm. centers. The sizes of channels T-Section for top and bottom shall be as approved by the Architects. The gate shall be provided with necessary bolts, nuts, locking arrangements, stoppers and brass handles on both sides. The gate shall be painted with one coat of anti-corrosive paint before erection and two coats of synthetic enamel paint of approved quality and shade.

Wrought Iron Grilles :

Grilles shall be manufactured as per drawings and the welded joints shall be smooth. The grilles shall be painted with one coat of anti-corrosive paint before fixing and two coats of synthetic enamel paint of approved quality and shade.

Aluminium Doors, Windows, Ventilators & Partitions etc. :

These shall be obtained from approved and established manufactures and shall be of Aluminium alloy conforming to I.S. 733 and sections shall generally conform to I.S. 1948. These shall be fabricated as per the details drawings,

Frames for windows, ventilators etc., shall be square and flat. Both fixed and openable frames shall be constructed of section which have been cut to length, mitred and welded at corners. Sub-dividing bars shall be tenoned and rivetted into the frames. All frames shall have corners welded to a true right angle. For side hung shutters, hinges shall normally be of projecting type made of Aluminium alloy and rivetted / welded to frames. Handles, peg stays etc., or approved quality Aluminium or its alloy conforming to IS Specifications.

All types of shutters shall be fabricated, supplied and fixed as specified in the IS:1948. The rate shall include supplying and fixing all fittings and fixtures required for proper and safe operation.

The doors shall be fabricated by using standard aluminium alloy extruded sections as specified in IS:1948. The rate shall include supplying and fixing all fittings and fixtures including approved locking arrangement as directed.

All aluminium fabricated work shall be anodised to the British Standard 1616:1961 to give an anodised film of 25 micron.

The Contractor shall take to stack the fabricated frames etc., on site under cover. They shall be handled with care, stacked on edge on level bearers and supported evenly. Before erecting, the frames coming in contact with concrete, masonry, plaster of dissimilar metals shall be coated with a coat of Zinc Chromate conforming to IS:104-1950. The Contractor shall cover all anodised finish work with a thick layer of clear transparent lacquer based on methacrylates or cellulose butyrate to protect the surface from wet cement during installation. This coating shall removed on completion. Before handing over, the aluminium work shall be washed with mild solution of non-alkali soap and water.

Glazing :

Glazing shall be approved specially quality glass of specified thickness and unless otherwise directed it shall be provided the exterior with metal beading.

FLOORING, SKIRTING, DADO AND STONE VENEERING

All flooring, skirting, dado and stone veneering etc., shall be executed strictly as per relevant IS Specification and in workman-like manner.

Indian Patent Stone:

Selection of materials, method of mixing, placing and compacting shall generally conform to the specifications under plain and reinforced cement concrete described earlier. A stiff mix consistent with workability shall be used.

Preparation of Surface:

Before the operation for laying topping is started the surface of base concrete shall be thoroughly cleaned of all dirt, loose particles coked mortar droppings and laitance if any, by scrubbing with coir or steel wire brush. Where the concrete has hardened so much that roughening of surface by wire brush is nor possible, the surface shall roughened by chipping or hacking at close intervals. The surface shall then be cleaned with water and kept wet for 12 hours and surplus water shall be removed by mopping before the topping is laid.

Laying :

The screed strips shall be fixed over the base concrete dividing it into suitable panels. Before placing the concrete for topping, neat cement slurry shall be thoroughly brushed into the prepared surface of the base concrete just ahead of the finish. Concrete of specified proportion and thickness shall be laid in alternate panels to required level and slope and thoroughly tamped.

Finishing the Surface:

After the concrete has been fully compacted it shall be finished by troweling or floating with neat cement rendering. Finishing operations shall start shortly after the compaction of concrete and the surface shall be troweled three times at intervals so as to produce a uniform and hard surface. The satisfactory resistance of floor to wear depends largely upon the care with trowelling is carried out. The time intervals allowed between successive trowellings is very important. Immediately after placing cement rendering, only just sufficient troweling shall be done to give a level surface. Excessive troweling in the earlier stages shall be avoided as this tends to bring a layer rich in cement to the surface. Sometime, after the first troweling, the duration depending upon the temperature, atmospheric conditions and the rate of the set of cement used, the surface shall be retrowelled to close any pores in the surface and to bring to surface and to scrape off any

excess water in concrete or laitance. No dry cement shall be used directly on the surface to absorb moistures or to stiffen the mix. The final troweling shall be done well before the concrete has become too hard but at such time that considerable pressure is required to make any impression on the surface.

If directed by the Architect, approved mineral pigment shall be added to the rendering to give desired colour and shade to the flooring at no extra cost.

When instead of 1:2:3 or 1:2.5:3.5 mix, 1:2:4 is specified the topping shall be rendered with 1:1 cement mortar with a suitable mineral pigment, if directed, instead of cement only. If specified in the Schedule of Quantities, the flooring shall be machine polished as per the Architect's instructions.

Wherever the patent stone flooring is used as finishing on roof the joints shall be filled with an approved bitumastic filler in workman like manner.

Ironite Topping :

Instead of finishing the top with rendering coat of 1:1 cement mortar, the top shall be finished with 12 mm. thick ironite topping. Unless otherwise specified, one part of ironite and four parts of ordinary cement by weight shall be mixed dry thoroughly. This dry mixture shall be mixed with stone grit 6 mm. (1/4") and down size or as otherwise directed in the ratio of 1:2 by volume and well turned over. Just enough water shall be added to this dry mix and mixed thoroughly well and laid to uniform thickness of 12 mm. and compacted. After initial set has started the surface shall be finished as directed.

Plain and Coloured Cement Tiles, Marble Mosaic and Terrazzo Tiles Flooring :

The tiles shall conform to IS : 1237 having the colour approved the Architect and the rate shall include provision of border tiles and tiles of different colours in pattern if directed. The mosaic topping of lighter shade tiles shall be made of White Cement with an approved shade pigment and neutral shade shall be of Grey cement with an approved shade pigment. The type of tiles shall be as specified in respective items.

The sub-grade shall be thoroughly wetted after cleaning of all dirt, laitance, and loose material. A bed of lime mortar consisting of one part of lime and two parts of sand shall be laid and properly leveled to an average thickness of 25 mm. and the surface shall be kept slightly rough to form a satisfactory key for tiles. Neat cement paste of honeylike consistency shall be spread over mortar bed, over such area at a time as would accommodate about 20 tiles. Tiles shall be soaked in water for 15 minutes and allowed to dry for the same duration. Tiles shall then be fixed with a thin coat of cement paste on back of each tile and then each tile being gently tapped with a wooden mallet till it is properly bedded and in level with adjoining tiles. Joints shall be fine and as imperceptible as possible.

After tiles have been laid in a room or a day's fixing work is completed, surplus cement grout that may have come out of the joints may be wiped off gently and joints cleaned. A thin slurry of coloured cement matching to the colour of tiles shall be spread over it and rubbed so as to seal even a thinnest joint between the tiles and make it impervious and the flooring cured for 7 days. The tiles shall be polished and finished according to IS:1443.

Dado, Skirting and Risers:

Tiles shall conform to IS:1237 and shall be of approved design. The tiles shall be fixed near cement grout on a blacking coat consisting of 1:4 cement sand plaster of 15 mm. thick. The top and bottom junctions of tiles shall be rounded off neatly as directed. The joints shall be filled with matching shade coloured cement slurry. The surface shall be kept wet for 7 days and then polished with carborundum stone to obtain smooth surface and fine polish.

Shahabad / Tandur / Kotah / Cuddappa Stone Flooring :

The flooring shall be either with rough stone or machine cut and machine polished as specified in respective items and shall be of specified thickness and of approved quality and size, free from cracks and flakes and shall be uniform in colour with straight edges. The sides of machine cut and machine polished stone shall have perfect right angles and surface smooth. The stone slabs shall be laid and finished as described under plain cement or colour cement tiles on a bedding of 1:2 lime mortar 25 mm. (Average) thickness. The finished stone surface thus laid shall then be polished to the required degree as approved by the Architect.

In Dado, Skirting, Risers etc. :

Stone slabs shall be laid on backing plaster of cement mortar 1:4 of 15 mm. to 20 mm. thick and finished as described under plain and coloured cement tile dado.

Marble mosaic / Terrazzo in situ work in flooring, dado, skirting etc. :

The terrazzo / mosaic finish shall be laid on an under layer of thickness as specified in the respective items. The topping shall consist of a layer of marble chips of selected sizes, colour and design approved by Architect, mixed with cement with desired shade of pigment.

For lighter shade mosaic .terrazzo white cement shall be used and for neutral shade, grey cement shall be used. The proportion of terrazzo mix shall be three parts of cement one part of marble powder by weight. For every part of cement marble powder mix, the proportion of marble aggregate by volume shall be 1.5 parts unless otherwise specified.

The topping shall be mixed and laid in panels as described in IS:2114 and as per decorative designs prepared by Architects. The dividing strips of panels shall be Aluminium or as specified in the Schedule of Quantities. It shall be polished as specified in IS: 2114.

Broken Mosaic Flooring :

Broken mosaic finish shall be laid on an underlayer of thickness as specified in the item.

Pieces of mosaic tiles shall be obtained from broken marble mosaic tiles of approved shade conforming to IS:1257. The sizes of pieces shall be suitable to obtain the desired pattern of flooring as shown on the drawings or as approved by Architect.

Broken pieces shall be thoroughly wetted before fixing them. Ordinary or coloured cement grout shall be spread on the bedding. Mosaic tile pieces shall be fixed piece by piece to the desired pattern. The flooring shall be laid to correct level and slopes and compacted by straight screed tamper. The grout shall cream upto the surface. The junctions of the flooring and the wall shall

be rounded and the flooring shall be extended along the wall to about 15 cm. (6"). After the day's work, the surplus cement grout that may have come out of the joints shall be cleaned off. The flooring shall be cured for seven days and then polished with a machine as stipulated in IS:1443.

Broken China Mosaic :

Broken China Mosaic flooring shall be exactly as per broken mosaic tile flooring except that the broken pieces shall be of China of approved colour and manufacturer and the floor shall not be polished.

Marble Flooring:

Marble slabs shall be of the best Indian marble of White or other approved colour as specified in the item. They shall be hard, dense, uniform and homogeneous in texture. They shall have even crystalline grain and free from defects and cracks. The surface shall be machine polished to an even and perfectly plane surface and edges machine cut true to square. The rear face shall be rough enough to provide a key for the mortar.

No slab thinner than the specified thickness at its thinnest part. The sizes of the slabs shall be as specified in the respective items.

The slabs shall be paid as described under mosaic tile flooring in every respect.

White Glazed / Ceramic Tiles / Vitrified Tiles in Flooring and Dado :

White Glazed Tiles from an approved manufacturer conforming to IS:777 shall be used. They shall be of specified size and thickness. All specials viz. coves, internal and external angles, corners, beads etc., shall be used wherever directed. Underlayer of specified thickness and mortar of stipulated proportion shall be laid as described in marble mosaic flooring. Tiles shall be washed clean and set in cement grout and each tile being gently tapped with a wooden mallet till it is properly bedded and in level with the adjoining tiles. The joints shall be kept as thin as possible and in straight lines or to suit the required pattern. After the tiles have been laid, surplus cement grout shall be cleaned off.

The joints shall be cleaned off the grey cement grout with a wire brush or trowel to a depth of 5 mm. (3/16") and all dust and loose mortar removed. Joints shall then be flush pointed with white cement. The floor shall then be kept wet for seven days. After curing, the surface shall be washed with mild hydrochloric acid and clean water. The finished floor shall not sound hollow when tapped with a wooden mallet.

PLASTERING

Scaffolding :

Scaffolding for carrying out plastering work shall be double steel scaffolding having two sets of vertical supports so that the scaffolding is independent of the walls.

Preparation of surface :

All putlog holes in brick work and junction between concrete and brick work shall be properly filled in advance. Joints in brick work shall be raked about 10 mm. if not raked out while constructing brick masonry work and concrete surface hacked to provide the grip to the plaster, if not hacked earlier projecting burns of mortar formed due to gaps at joints in shuttering shall be removed.

The surface shall be scrubbed clean with wire brush / coir brush to removed dirt, dust etc., and the surface thoroughly washed with clean water to remove efflorescence, grease and oil etc., and shall be kept wet for a minimum of six hours before application of plaster.

Neeru Plaster :

Cement mortar of specified proportion and thickness shall be prepared in small batches and applied to the wall surface / ceiling. The ensure proper thickness, gauged patches shall be made at 1.5 to 2 m. apart and the surface plastered true to line, level and plumb taking special care to finish jambs of windows, doors, wall returns, corners, junctions etc. A thin layer of neeru shall then be applied and rubbed into surface and finished by means of trowel until the surface is even and smooth. The surface shall be kept moist for seven days and then given a coat of white wash.

Sand-faced Plaster :

The surface shall be prepared as above.

The coat of cement mortar in proportion of 1:4 or as specified, shall be applied uniformly all over the surface to a thickness of 12 mm. and finished true to level and line and keys shall formed on the surface. The surface shall be kept moist till the finishing coat is applied.

The finishing coat shall be applied a day or two after. The proportion of mortar for finishing coat shall be one part of cement and three parts of selected, well graded and washed sand, or as specified under item and it shall be applied in a uniform thickness of 6 mm. (1/4").

The surface shall be tapped to uniform grained texture by using sponge pads as directed. Curing shall start after 24 hours and the surface kept wet for seven days.

Rough Cast Plaster:

Except for the finishing coat the surface shall be prepared and base coat of plaster applied as under sand-faced plaster.

Finishing coat mortar shall be in proportion of one part of cement and one part of specially selected and graded sand and one part of gravel of 3 to 6 mm. size. It shall be flung upon the first coat with large trowel to form an even and decorative coat. The work shall generally conform to clause 16.5 of IS:1661-1960. The thickness of the coat shall be about 12 mm. (1/2"). It shall be cured for seven days.

Rough coat plaster with colour finish :

This finish shall be similar to Rough cast plaster above except a high grade mineral pigment of approved shade shall be mixed with white cement instead of ordinary grey cement while preparing the mortar.

Water-proofing Treatment :

Unless otherwise specified, the Contractor shall carry out waterproofing treatment of basements, terrace and water retaining structures through reputed firms having specialization in the line and approved by the Architects. The Contractor shall also furnish full details of such treatment to the Architects and provide all information / proof etc., regarding the effectiveness of the treatment when called upon to do so. All such treatment shall have to be guaranteed in the form approved by the Employer for a minimum period of ten years. Any defects / leakages noticed during the guarantee period shall have to be rectified free of cost by the Contractor including reinstating the surface to its original condition and finish.

Water-proofing of sunk portions of floor slabs for baths, W.C. and kitchen moies etc., in residential buildings, unless otherwise specified, shall be done as specified in the schedule and shall generally comprise of :

- a) A coat of hot bitumen, min. 6 mm. thick screeded with stone grit.
- b) Min. 20 mm. thick cement plaster in cement mortar 1:3 with approved water-proofing cement compound as per manufactures specifications. The plaster shall be cured by pounding for seven days.

The rate for the above treatment shall include drying and cleaning surfaces free of dust etc., and wiping with kerosene before application of bitumen. The vertical faces and returns shall also be treated similarly. The actual area treated including vertical faces and returns shall be measured and paid for. The work should be done in such a way that the finished flooring in bath has a minimum slope of 20 to 25 mm.

PAINTING

General:

Wherever scaffolding is necessary, it shall be double scaffolding.

The surface shall be thoroughly brushed free from mortar droppings and foreign matter. All steel work shall be cleaned of loose rust, mill scales etc. so as to expose the original surface. All

broken edges, cracks, loose plaster and wavy surface shall be brought up either by patch plaster work or by plaster of paris.

All materials viz., dry distemper, oil bound distemper, oil paint, flat oil paint, synthetic enamel paint, plastic emulsion paint, cement primer, red lead and other primers and metallic paints shall conform to respective I.S. specifications and shall be obtained from approved manufactures. All paints shall be brought on site in sealed thins in ready mixed form and shall be applied direct with the addition of thinner, if recommended by the manufacturers.

White Washing:

White was shall be prepared from lime slaked on spot, mixed and stirred with sufficient water to make a thin cream. This shall be allowed to stand for 24 hours and shall be screened through clean cloth. Four kg. gum dissolved in hot water shall be added to each cubic meter of the cream (115 gm. per cft.).

Blue shall be added to give required whiteness. The approximate quantity of water to be added in making cream shall be five liters per kg. of lime.

White wash shall be applied in specified coats by using flat brushes or spray pumps. Each coat shall be allowed to dry before next coat is applied. If additional coats than what have been specified, are necessary to obtain uniform and smooth finish, it shall be given at no extra cost. The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed.

If directed by the Architects one coat of chalk and glue shall be applied before application of white / colour wash at no extra cost.

ColourWash :

Colour wash shall be prepared by adding mineral colours not affected by lime to white wash. No colour wash shall be done until a sample of the colour wash to the required tint or shade has been got approved form the Architects.

Colour wash shall be applied as specified under white wash.

Dry Distemper :

Shade shall be got approved from the Architects before application of distemper.

The surface shall be prepared as specified earlier. A primer coat using approved primer or sizing shall be applied. Distemper prepared as per manufacturer's directions shall be applied and each coat shall be allowed to dry before subsequent coat is applied. The finished surface shall be free form chalking when rubbed, even uniform and shall show not brush marks. If additional coats are necessary, they shall be given at no extra cost.

Oil Bound Distemper:

The surface shall be prepared as specified above. A primer coat of either cement primer or any approved distemper primer shall be applied.

After the primer coat has dried, the surface shall be lightly sand papered and dusted to make to smooth to receive distemper.

Distemper shall be prepared as per the directions of the manufacturer and conforming to shade approved. It shall be applied in specified coats, taking care to allow for drying of each coat before subsequent coats are applied.

Water-proof Cement Paint / Sand-tex matt Paint:

The surface shall be prepared as specified above and thoroughly wetted with clean water before water-proof cement paint is applied.

The paint shall be prepared strictly as per manufacturers specifications and in such quantities as can be used up in an hour of its mixing, as otherwise the mixture will set and thicken, affecting flow and finish.

The paint thus prepared shall be applied on clean and wetted surface with brush or spraying machine. The solution shall be kept stirred during the period of application. It shall be applied on the surface which is on the shady side of the building so that the direct heat of the sun on the surface is avoided. The completed surface shall be watered after the days work. Number of coats shall be as specified in the item.

Painting – Oil / Enamel / Plastic Emulsion etc. :

Ready mixed oil paint, flat oil paint, plastic emulsion paint, ready mixed synthetic enamel paint, etc., shall be brought in original containers and in sealed tins. If for any reason thinner is necessary, the brand and quantity of thinner recommended by the manufacturer or as instructed by the Architect shall be used. The surface shall be prepared as specified above and a coat of approved primer shall be applied. After 24 hours drying approved or specified quality paint shall be applied evenly and smoothly. A filler putty coating may be given to give a smooth finish. Each coat shall be allowed to dry out thoroughly and then lightly rubbed down with sand paper and cleaned of dust before the next coat is applied. Number of coats shall be as specified in the item and if the finish of the surface is not uniform, additional coats as required shall be applied to get good and uniform finish at no extra cost. After completion no hair marks from the brush or clogging of paint puddles in the corners of panels, angles or mouldings etc., shall be left on the work. The glass panes, floor etc. shall be cleaned of stains.

When the final coat is applied, if directed, the surface shall be rolled with a roller or if directed, it shall be stippled with a stippling brush.

POLISHING AND VARNISHING

French Polishing :

French spirit polish shall be of an approved make conforming to IS:348. If it has to be prepared on site, the polish shall be made by dissolving 0.7 kg. of best shellac in 4.5 liters of methylated spirit without heating. To obtain required shade pigment may be added and mixed.

Surface shall be cleaned. All unevenness shall be rubbed down smooth with sand paper and well dusted. Knots, if visible, shall be covered with a preparation of red lead and glue. Resinous or loose knots and gaps shall be filled with season timber pieces and make level with rest of the surface. Holes and indentations on surface shall be filled with putty made of whiting and linseed oil. Surface shall be give a coat of filler made of 2.25 kg. of whiting in 1.5 liter of methylated spirit. When it dries, surface shall again be rubbed down perfectly smooth with sand paper and wiped clean.

Piece of clean fine cotton cloth and cotton wool made into shape of pad shall be used to apply polish. The pad shall be moistened with polish and rubbed hard on the surface applying the polish sparingly but uniformly and completely over the entire surface. It shall allowed to dry and another coat applied in the same way. To give finishing coat, the pad shall be covered with a fresh piece of clean fine cotton cloth, slightly damped with methylated spirit and fubbed lightly and quickly with a circular motion, till the finish surface attains uniform texture and high gloss.

Wax Polishing :

Wax polish shall either be prepared on site or obtained readymade from market. Polish made on the site shall be prepared from a mixture of pure bees wax, linseed oil, turpentine oil and varnish in the ratio of 2:1.5:1:1/2 by weight. The bees wax and the boiled linseed oil shall be heated over a slow fire. When the wax is completely dissolved the mixture shall be cooled till it is just warm, and turpentine oil and varnish added to it in the required proportions and the entire mixture is well stirred.

Surface shall be prepared as described under French polishing except that the final rubbing shall be done with sand paper which has been slightly moistened with linseed oil.

Mixture or polish shall be applied evenly, with a clean cloth pad in such a way that no blank patches are left, and rubbed continuously for half an hour. When the surface is quite dry a second coat shall be applied in the same manner and rubbed continuously for an hour or until the surface is dry. Final coat shall then be applied and rubbed for two hours or more if necessary, until the surface has assumed a uniform gloss and is quite dry showing no sign of stickness when touched. Gloss of the polish depends on the amount of rubbing, therefore rubbing must be continuous and with uniform pressure and frequent change in direction.

Varnishing :

Surface shall be prepared as described above. After preparation of surface, two coats of clean boiled linseed oil shall be applied at sufficient interval of time. After the linseed oil has dried two coats of varnish obtained from approved manufacturer shall be applied at sufficient interval of time. If the surface fails to produce the required gloss an additional coat shall be applied without any extra cost.

Laying of Pipes :

No concreting is ordinarily necessary. In cases where the soil is made up is very soft, concreting may be resorted to form the bed of the trench below the pipe, if directed by the Architects at no extra cost.

The pipes shall be carefully lid to levels and gradients shown in the plans and sections. Great care shall be taken to prevent sand etc., from entering the pipes. The pipes between two manholes shall be laid truly in straight lines without vertical or horizontal undulations. The body of the pipe shall for its entire length on an even bed in the trench and places shall be excavated to receive the collar for the purpose of jointing.

Jointing :

A few skeins of spun soaked in neat cement wash shall be inserted in the groove at the end of the pipe and the two adjoining pipes butted against each other. The collar shall then be slipped over the joint, covering equally both the pipes. Spun yarn soaked in neat cement wash shall be passed round the pipes and inserted in the joint by means of caulking tools from ends of the collar. More skeins of yarn shall be added and well rammed above.

The object of the yarn is to center the two ends of the pipes within the collar and to prevent the cement mortar of the joint penetrating into the pipes.

Cement mortar with one part of cement and one part of sand shall be slightly moistened and must on no account be soft or sloppy and shall be carefully inserted by hand in to the joint and more cement mortar added until the space of the joint has been filled completely with tightly caulked mortar. The joint shall be finished off neatly outside the collar on both sides at an angle of 45.

Any surplus mortar projecting inside the joint is to be removed and to guard against any such projections sack or gunny bag shall be drawn past each joint after completion.

Cement mortar joint shall be cured at least for seven days.

Testing :

All joints shall be tested to a head of 60 cm. of water above the top of the highest pipe between two manholes.

The lowest end of the pipe shall be plugged watertight. Water shall then be filled in manhole at the upper end of the line.

The depth of water in the manhole shall be 60 cm. plus the diameter of the pipe. The joint shall then be examined. Any joint found leaking or sweating shall be remade and embedded into 15 cm. layer of cement concrete (1:2:4) 30 cm. in length and the joint retested without any extra cost.

Manholes:

Size of manholes shall be as specified in the item and the sizes specified shall be internal size of the manhole. The work shall be done strictly as per standard drawing and specifications.

Bed Concrete :

Shall be in 1:4:8 cement concrete 23 cm. (9") thick.

Brick Work:

Shall be with best quality local bricks and proportion of mortar shall be 1:4 unless otherwise specified.

Plaster:

Inside of the walls shall be plastered with 12 mm. thick cement plaster 1:3 and finished with floating coat of neat cement. The external face shall be pointed with 1:3 cement mortar.

Benching:

Channels and benching shall be done in cement concrete 1:2:4 rendered smooth with neat cement.

Foot Rests:

M.S. square rods of 22 mm. (7/8") diameter or C.I. rungs shall be embedded in masonry where the depth of manhole exceeds one meter and they shall be fixed 35 cm. apart and projecting 11 cm. from the wall. Foot rests shall be painted with bitumen as directed.

Manhole Covers:

Covers for manhole in the road proper shall not be less than 200 kgs. on footpaths and backyards. Lightweight covers shall be used whose weight for 45 cm. dia. shall not be less than 58 kgs. and that of 90 cm. x 45 cm. or 61 cm. x 45 cm. 90 kgs.

Drop Connection:

The case of drop connection C.I. pipes shall be provided with heel rest bend at the bottom and bend with access door at the top for cleaning purposes. The pipe shall be encased in 1:3:6 plain concrete.

Miscellaneous Items of Work:

The rates quoted by the Contractor for all miscellaneous items of work viz. cooking platforms, mories, built-in cupboards, counters, partitions, railings, electrical meter, switchboard cupboards, etc., shall be for the work as described in the schedule of quantities and as show in detailed drawings and shall be to the entire satisfaction of the Architects.

Materials :

- 1) Materials shall be of best approved quality obtainable and unless otherwise specified they shall conform to the respective Indian Standard Specification.
- 2) Samples of all material be got approved before placing order and the approved samples shall be deposited with the Architects.
- 3) In case non-availability of materials in metric sizes, the nearest size in FPS units shall be provided with prior approval of the Architects for which neither extra will be paid nor any rebate shall be recovered.
- 4) If directed, materials shall be tested in any approved Testing Laboratory and the Contractor shall produce the test certificate in original to the Architect and entire charges for original as well as repeated tests shall be borne by the Contractor. If required by the Architects, the Contractor shall arrange to test portions of the work at his own cost in order to prove their soundness and efficiency.

If after any such test the work or portion of works is found, in the opinion of the Architects, to be defective or unsound, the Contractor shall pull down and redo the same at his own cost. Defective materials shall be removed from the site.

- 5) It shall be obligatory for the Contractor to furnish certificate if demanded by Architect, from manufacturer or the material supplier, that the work has been carried out by using their material and installed / fixed as per their recommendations.

Trenching For S.W Pipe Drains :

Excavation :

The trenches for the pipes shall be excavated to lines and levels as directed. The bed of the trench shall be truly and evenly dressed throughout from one change of grade to the next.

The gradient is to be set out by means of boning rods and should the required depth exceeded at any point, the trench shall be refilled by means of lime concrete of proportion 1:2:4 at the Contractor's own expense.

The bed of the trench, if in soft or made up earth, shall be well watered and rammed and depression thus formed shall be made up with sand or other suitable materials as directed by the Architects without any extra cost.

If rock is met with, it shall be removed to 15 cm. below the level of the pipe and the trench refilled with concrete or sand or other suitable material as directed by the Architects without any extra cost.

The rates shall include keeping trenches dry either by bailing out or pumping water, timbering and shoring of sides of excavation if required and directed by the Architects.

The trench width shall be nominal diameter of the pipe plus 38 cm. (15") but it shall not be less than 52 cm. (21").

Protection Of Existing Services:

All pipes, water mains, cables, etc., meet with in the course of excavation shall be carefully protected and supported.

Refilling:

Refilling in trenches for pipes shall be commenced as soon as the joints are tested, approved and haunching is done. The refilling on the top and around the drain shall be done with great care and in such a manner as will obtain the greatest amount of compactness and a solidity possible. For this purpose the earth shall be laid in regular layers of 15 cm. (6") watered and each layer rammed.

All surplus earth shall be disposed of as directed by the Architects.

Concreting:

All pipes shall be laid on bed of 15 cm. (6") concrete with one part of cement, four parts of sand and eight parts of brickbats of 38 mm. (1.5") down gauge or stone metal properly consolidated.

Concrete shall be laid to the full width of the trench and also in haunches as per the standard drawings. Or as described under item in Schedule of Quantity.

Laying And Jointing S.W. Pipes :

Laying:

The pipes shall be carefully laid to the levels and gradients shown on the plans and sections with "Socket Up" the gradient.

Jointing:

Spun yarn soaked in neat cement wash shall be passed round the joint and inserted in it by means of caulking tool. More skeins of yarn shall be added and well rammed home. Cement mortar with one part of cement and one part of sand shall be slightly moistened and must on no account be soft or sloppy and shall be carefully inserted by hand into the joint. The mortar shall then be punched and caulked into the joint and more cement mortar added until the space of the joint has been filled completely with tightly caulked mortar. The joint shall then be finished off neatly outside the socket at an angle of 45 degree.

Curing:

The joint shall be cured atleast for seven days.

Testing:

All joints shall be tested to a head of two feet of water above the top of the highest pipe between the two manholes. Any joint found leaking or sweating shall be remade or embedded in 15 cm. thick layer of cement concrete (1:2:4) 30 cm. in length and section retested at Contractors own cost.

Stoneware Gully Traps:

S.W. gully traps of specified sizes and quality as described earlier shall be fixed on 15 cm. thick and 70 cm. square cement concrete 1:4:8 bedding and the gully outlet to the branch drain shall be jointed similar to jointing of S.W. pipes. A brick masonry chamber 30 cm. x 30 cm. internally shall be constructed in half brick masonry with 1:5 cement mortar and the space between the trap and the wall filled up with cement concrete (1:4:8) and the upper portion of the chamber finished internally with 1:3 cement mortar and finished with neat cement. The corners and bottom of the chamber shall be rounded off so as to slope towards the grating.

In addition to 15 cm. x 15 cm. C.I. grating, the chamber shall have a C.I. cover with frame 30 cm. (inside) with machined seating faces, fixed on the top of the brick masonry with cement concrete 1:2:4 and rendered smooth. The weight of cover shall not be less than 4.53 kgs. and that of frame 2.72 kgs. The finished top of cover shall be left 4 cm. above the adjoining surface so as to exclude the surface water from entering the gully trap.

Or as described under item in Schedule of Quantity.

Hume Pipe Drains:

Pipes:

Shall be reinforced and conform to relevant I.S. Specification. They shall be new and perfectly sound, free from cracks, cylindrical, straight and of specified nominal diameter. Each pipe shall have one collar.

Trenches And Refiling:

Shall be as described under S.W. pipes.
Or as described under item in Schedule of Quantity.

Concreting:

No concreting is ordinarily necessary. In cases where the soil is made up or is very soft, concreting may be resorted to as described under "Stoneware pipe fitting" without any extra cost.

Laying And Jointing:

The pipe shall be laid as described under Stoneware pipe and fittings by placing the collar centrally over the joint.

Cast Iron Pipes For Drainage:

All drainage lines passing under buildings, floors and roads, in exposed horizontal positions above ground, shall be cast iron pipes. Pipes shall be sand cast conforming to Class "A" IS:1537 or centrifugally spun cast iron Class LA conforming to IS:1536.

Nominal dia. in mm.	BARREL			Socket Wt. in kgs.	Depth of socket in mm.	Total Wt. per 3.66 m. in kgs.
	Outside dia. in mm.	Wall thickness in mm.	Wt. per m (approx.) in kgs.			
80	98	7.2 (7.9)	14.7 (16)	5.5	84	59 (64)
100	118	7.5 (8.3)	18.6 (20.5)	7.1	88	75 (82)
125	144	7.9 (8.7)	24.7 (26.4)	9.2	91	98 (106)
150	170	8.3 (9.2)	30.1 (33.2)	11.5	94	122 (133)
200	222	9.2 (10.1)	44 (48.1)	16.8	100	178 (193)
250	274	10.0 (11.0)	59.3 (65.0)	22.9	103	240 (261)

Note : Figures in brackets indicate particulars of pipes conforming to Class "A" IS:1537 quality and other particulars remaining the same.

These shall be free from cracks and other flaws. The interior of pipes and fittings shall be clean and smooth and painted inside and outside with Dr. Angus Smith's solution or other approved anti-corrosive paint, if not painted initially by the manufacturer.

The access door fittings shall be of proper design so as not to form any cavities in which filth may accumulate. Doors shall be provided with 3 mm. (1/8") rubber insertion packing and when closed and bolted they shall be watertight.

The joints shall be filled with lead as described under Soil Pipes.

Manholes, Vent Shaft, Gully Chamber Etc. :

Size Of Manholes:

The size specified in the Schedule of Quantities shall be internal size of the manhole. The work shall be done strictly as per standard drawing and following specifications.

Bed Concrete:

Shall be in 1:4:8 cement concrete 23 cm. (9") thick.

Brick Work:

Shall be with locally available best quality bricks in 1:4 cement mortar.

Plaster:

Inside of the walls shall be plastered with 12 mm. thick cement plaster 1:3 and finished with a floating coat of neat cement.

In wet grounds 20 mm. thick plaster of the above specification shall be done on the exterior surface of the walls also and this plaster shall be waterproofed with the addition of approved waterproofing compound as per manufacturers specification Or as described under item in Schedule of Quantity.

Pointing:

In dry ground, pointing shall be done in 1:2 cement mortar to the outside surface.

Benching:

Channels and benching shall be done in cement concrete 1:2:4 rendered smooth with neat cement.

The following size of channels for the bench shall be added.

Size of Drain		Depth at the Center		Depth at the sides i.e. at walls	
In cm.	In inches	In cm.	In inches	In cm.	In inches
10	4	15	6	25	10
15	6	20	8	30	12
23	9	28	11	38	15
30	12	35	14	45	18
38	15	43	17	53	21
45	18	50	20	61	24

Foot Rests:

C.I. foot rests or M.S. square rods of 22 mm. (7/8") shall be embedded in masonry. They shall be fixed 30 cm. apart and projecting 11 cm. from the wall. Foot rests shall be painted with bitumen as directed.

Manhole Covers :

Manholes covers shall be of tough homogenous cast iron of heavy or light type as specified. The sizes specified are the clear internal dimensions. Covers for manholes in the road proper shall not weight less than 200 kgs. On foot-paths and backyards, lightweight covers of 45 cm. diameter having weight not less than 58 kgs. or covers of size 92 cm. x 45 cm. or 61 cm. x 45 cm. having weight of 90 kgs. shall be used.

Or as described under item in Schedule of Quantity.

Drop Conection:

In case of drop connection C.I. pipes shall be provided with heel rest bend at the bottom and bend with access door at the top for cleaning purposes.

II. Sanitary Installation:

Sanitary Fixtures:

Indian Type W.C.Pans:

The W.C. pan shall be of White Vitreous China, of specified size and pattern. Pan shall be of approved quality and shall bear the mark of the firm manufacturing it. It shall have 10 cm. (4") porcelain trap ("P" or "S" type with effective seal) and 5 cm. (2") vent arm.

Orissa Type Pans:

Shall be from an approved manufactures and traps as specified above.

Fixing:

Pan shall be fixed securely with a cushioning bed in an approved manner taking care that the cushion is uniform and even, without having any hollows between pan and the concrete. The joint between the pan the trap be made with cement mortar 1:1 and shall be leakproof.

Each closet shall be provided with the following accessories and the rate shall be all inclusive.

- 1) Necessary length of 10 cm.; H.C.I. pipe or lead pipe connecting the pan and plug bend. (The plug bend / tee connection to vertical stack shall be paid under appropriate item).
- 2) Wherever anti-syphonage pipe connections are required necessary length of lead pipe 6.25 cm. shall be provided.
- 3) Flushing cistern shall be 10 litres capacity and cast Iron overhead type with heavy G.I. Chain pull unless otherwise specified. If low down cistern is specified it shall be White Vitreous China cistern of best quality from an approved manufacturer with Chromium plated flush handle. The cistern shall have G.I. over flow pipe of length as per Municipal requirement or as per Architects drawing with mosquito-proof Brass screw cap and C.I. brackets with wall plugs and Brass union and couplings for flush pipe etc. complete unit.
- 4) 12 mm. PVC water inlet pipe with 12 mm. Brass stop cock.
- 5) The flush pipe from the cistern shall be of 32 mm. dia. telescopic G.I. pipe or lead pipe or as specified, which shall be connected to the W.C. pan by means of an approved type of joint.
- 6) Painting : All fittings and fixtures shall be painted with two coats of enamel paint over a coat of primer.
Or as described under item in Schedule of Quantity.

European Type W.C. :

The closet shall be of White Vitreous China readily flushed, of wash down type and shall be of best quality manufactured by an approved firm, and fixed to the floor by approved means, as described under item in Schedule of Quantity.,

Each closet shall be provided with the following accessories and the rate shall be all inclusive.

- 1) **Seat** : Heavy black plastic seat of approved quality and seat cover with rubber buffers fixed to the pan with C.P. Brass bar hinge.
- 2) **Cistern** : Low level flushing tank 10 litres capacity of White Vitreous China cistern of best quality manufactured by an approved firm with C.P. flush handle and C.P. overflow pipe of length as per Municipal requirement or as per Architects drawing with mosquito-proof brass C.P. Cap etc., complete unit including enameled or C.P. flush pipe and bend.
Or as described under item in Schedule of Quantity.
- 3) Necessary length of PVC water inlet pipe and 12 mm. dia. C.P. brass stop cock.

- 4) Necessary length of porcelain or lead or C.I. connecting pipe 10 cm. dia. (plug bend / tee connection to vertical stack shall be paid under appropriate item).
- 5) Wherever anti-syphonage pipe connections are required, necessary length of lead pipe 6.25 cm. dia. shall be provided.

Panting:

All fittings and fixtures shall be painted with two coats of enamel paint over a coat of primer, externally.

Lipped Urinals:

Shall be flat back or angle urinal of specified dimensions and shall be of White Vitreous China from an approved manufacturer.

They shall be screwed to the wall with coach screws of Chromium plated Brass on dowel shaped wooden plugs built into the walls or fixed as per manufacturers specification. Each basin should have an outlet with C.P. Brass hinged grating connected to 40 mm. diameter waste pipe through a C.P. bottle trap. When a range of urinals are provided only a straight length of 40 mm. diameter waste pipe and white glazed half round channel with tread platform finished with white glazed tiles complete as per Architects drawings shall be provided. All joints shall be in plumbers wiped solder joint with necessary C.P. Brass sockets and thimble etc.

Stall Wall Type Urinals:

Shall be White Vitreous China of approved design and manufacture.

They shall be fixed to the wall as per manufacturer's specification. Each urinal should have an outlet with C.P. Brass hinged grating connected to 40 mm. diameter waste pipe through a C.P. Brass bottle trap. All joints shall be in plumber's wiped solder joint with necessary C.P. Brass sockets and thimble etc.

Flushing Cistern:

These shall be automatic flushing cistern of vitreous China or as specified in the Schedule of Quantities complete with valveless syphon fittings. Cistern shall be supported on brackets of standard pattern and fixed to wooden dowel plugs embedded in the wall with C.P. Brass screws.

Angle Valve:

The cistern shall be fed with 15 mm. (1/2") C.P. Brass inlet tube angle valve of approved make with necessary length of lead inlet pipe complete with C.P. Brass unions unless otherwise specified in the Schedule of Quantities.

The capacity of flushing cistern and size of the flush pipe for the number of urinals shall be as follows :

Numbers of Urinals	Capacity of flushing cisterns		Mains		Size of distribution	
	In Litres	In Gallons	In mm.	In inches	In mm.	In inches
1	5	1	--	--	15	1/2
2	10	2	20	3/4	15	1/2
3	10	2	25	1	15	1/2
4	15	3	32	1.25	15	1/2

The main and distribution pipe fittings and clamps shall be of C.P. Brass unless otherwise specified in the Schedule of Quantities. Distribution pipes shall feed the urinals with C.P. brass spreaders of approved make.

Painting:

All brackets etc., shall be painted with two coats of enamel paint over a coat of primer.

Lavatory Basins:

They shall be of White Vitreous China of best quality manufactured by an approved make and size as specified in the Schedule of Quantities. They shall be supported on a pair of C.I. brackets of approved design.

- a) **Fittings:** Each lavatory basin shall be provided with a single cold water C.P. Brass pillar tap of approved design and make, C.P. Brass waste, C.P. Brass chain and rubber plug, C.P. Brass bottle trap of approved quality and design, with C.P. brass stop cock and PVC water inlet pipe of standard length 1/2" dia. complete.
- b) **Waste Pipe** : Waste pipe beyond bottle trap shall be measured and paid separately under appropriate item.
Where specified, lavatory basins shall be provided with puff pipe with a brass perforated screws cap.
- c) **Painting** : All brackets, pipes etc. shall be painted with two coats enamel paint over a coat of primer.

Sinks:

They shall be of White Vitreous China or as specified in the Schedule of Quantities with weir type overflow. The size of sink shall be as specified and shall be of approved make. They shall be supported on a pair of C.I. brackets of approved design.

- a) **Fittings** : Each sink shall be provided with 40 mm. (1.5") C.P. Brass waste of approved pattern with C.P. Brass chain and 40 mm. rubber plug and 40 mm. dia. C.P. Brass trap and union which shall be connected to 40 mm. diameter waste pipe.
Waste pipe beyond the trap shall be measured separately and paid under appropriate item.
Where specified sinks shall be provided with puff pipe with a Brass perforated screw item.

- b) **Painting** : All fittings, brackets and pipes shall be painted with two coats of enamel paint over a coat of primer.

Drainage Board:

Drainage boards of type and size as specified in the Schedule of Quantities shall be provided. These shall be fixed on strong brackets of approved design and where necessary provided with hinges. Brackets shall be painted with two coats of enamel over a coat of primer.

III. Toilet Requisites:

Mirrors:

Mirrors shall be of the best quality , specified size, approved design and make. It shall be mounted on plywood / partical board backing and shall be fixed in position by means of four C.P. Brass screws and cup washers over rubber washers on wooden plugs firmly embedded in the wall. Alternative method for fixing could be by using Brass clamps with C.P. Brass screws. A suitable T.W. cover mould of approved design shall be fixed all round as directed.

Glass Shelf:

The shelf shall be of glass of approved quality and thickness with edges rounded off. The size of the shelf shall be as specified and shall rest on C.P. Brass brackets which shall be fixed with C.P. Brass screws to wooden plugs, firmly embedded in the wall. The shelf shall have C.P. Brass guard rail all round.

Towel Rail:

Towel rail shall be of C.P. Brass with two C.P. Brass brackets. The size of the rail shall be as specified. The brackets shall be fixed by means of C.P. brass screws to wooden cleats firmly embedded in the wall. Where specified, Aluminium towel rails may be used of approved quality and design.

Toilet Paper Holder:

Toilet paper holder shall be of White vitreous China or as specified. It shall be recessed in wall.

TECHNICAL SPECIFICATIONS FOR INTERIOR MATERIALS

1. GENERAL

This specification is for work to be done, item to be supplied and materials to be used in the works as shown and defined on the drawings and described herein, all under the supervision and to the satisfaction of the Competent Authority.

Competent authority means Architects / Engineer in charge.

- 1.1** The workmanship is to be the best and of high standard, use must be made of special trades men in all respects of the work and allowances must be made in the rates for doing so.
- 1.2** The materials and items to be provided by the contractor shall be approved by the Competent Authority in accordance with any samples which will be submitted for approval by Contractor and generally in accordance with the Specifications Also if products are specified in the catalogue reference, the contractor will be required to obtain the approval of the Competent Authority before using a materials. The Contractor shall produce all invoices, vouchers or receipts for any material if called upon to do so by the Competent Authority.
- 1.3** Samples of all materials are to be submitted to the Competent Authority for approval before the Contractor orders or delivers the materials at site. Samples together with the their packing are to be provided free of charge by the Contractor and should any materials be rejected, they will be removed from the site at the Contractor's expense. All samples will be retained by the Competent Authority for comparison with materials, which will be delivered at the site. Also, the Contractor will be required to submit specimen finishes of colours, fabrics etc. for the approval of the Competent Authority before proceeding with the work.
- 1.4** The contractor shall be responsible for providing and maintaining and boxing or other temporary coverage required for the protection of dresses or finished work if left unprotected. He is also to clean out all shelving's, out ends and other waste from all parts of the works before coverings or in-fillings are constructed.
- 1.5** Templates, boxes and moulds shall be accurately set out and rigidly constructed so as to remain accurate during they are in use.
- 1.6** All unexposed surface of timber e. g. false ceiling, backing fillets, backs of door frames, cupboard framing, grounds, etc. are to be treated with two coats of approved timber preservative before fixing or converging.
- 1.7** Only first class workmanship will be accepted. Contractor shall maintain uniform quality and consistency in workmanship throughout.

2. JOINERY:

- 2.1** Joinery is to be prepared immediately after the placing of the contract, framed up, bonded and waged up. Any portions that are wrapped or found with other defects are to be replaced before wedging up. The whole of the work is to be framed and finished in a workmen-like manner in accordance with the detailed drawings wrought and wherever required, fitted with all necessary metal ties, straps, belts, screws, glue etc. Running beaded joints are to be cross-tongued with teak wherever 1(1/2) thick double cross tongued. Joiners work generally to be finished with fine sand/glass paper.
- 2.2 Joints:** All joints shall be standard mortise and tenon, dowel, dovetail, and cross-halved. Nailed or glued butt joints will not be permitted, screws, nails etc. will be standard iron or wire of oxidized nettle fold tenon should fit the mortises exactly.
- 2.3** Nailed or glued butt joints will not be permitted except in exceptional cases with approval of Competent Authority.
- 2.4** Where screws shown on a finished surface, those will be sunk and the whole plugged with a wood plug of the same wood and grain of the finished surfaces will be neatly punched and the hole filled with wood filler to match the colour.
- 2.5** Should joints in joiner's work open, or other defects arise within the period stated for defect liability in the contract and the clause thereof, be deemed by the Competent Authority to be due such defective joinery shall be taken down, and refilled, redecorated and/or replaced if necessary and any work disturbed shall be made good at the Contractor's expense.
- 2.6** Nails spikes and bolts shall be of lengths and weights approved by the Competent Authority. Nails shall comply with IS 1959-1960 or equivalent approved quality sample. Brass-headed nails are to comply with B. S. 1210. Wire staples shall comply with B. S. 1494 or equivalent.
- 2.7** The contact surface of dowels, tennons wedges etc., shall be glued with an approved adhesive.
- 3** Where glued, joinery and carpentry work is likely to come into contact with moisture, the glue shall be waterproof.

3.0 HARDWARE AND METALS:

The hardware throughout shall be of approved manufacture or supplier well made and equal to in every respect to the samples to be deposited with the Competent Authority. The contractor may be required to produce and provide samples from many different sources before the Competent Authority takes decision and he should allow his rates for doing so.

- 3.1 Fittings generally shall be brass oxidized, unless otherwise specified and shall be suitable for their intended purpose. In any case, it will have to be approved by Competent Authority before the Contractor procures it at site of work.
- 3.2 Screws are to match the finish of the article to be fixed, and to be round or flat headed or counter sunk as required.
- 3.3 The contractor should cover up and protect the brass and bronze surfaces with a thick grease or other suitable productive material, renew as necessary and subsequently clean off away on connection.
- 3.4 Aluminium and stainless steel shall be of approved manufacture and suitable for its particular application. Generally, the surface of aluminium shall have an anodized finish and both shall comply with the samples approved by the Competent Authority. All stainless steel sheets shall be 304 S. S. Japan or equivalent with gauge as specified but not thinner than 16G.
- 3.5 All steel, brass, bronze, aluminium and stainless steel articles shall be subjected to a reasonable test at the Contractor's expense.
- 3.6 All brazing and welds are to be executed in a clean and smooth manner rubbed down and left in the flattest and tidiest way, particularly where exposed.
- 3.7 Chromium plating shall be in accordance with I. S. Standard or as per approved specification for normal outdoor conditions and shall be on a base material of copper or brass.

4.0 GLAZIER:

- 4.1 All glass to be of approved manufacturer complying with IS 3548-1966 as per approved quality and sample to be of the selective qualities specified and free from bubbles, smoke, air holes and other defects.
- 4.2 Polished plate glass shall be "glazing glass" (G. G.) quality and that for mirrors shall be "silvering quality" (S.G.) conforming to IS 3438-1965 or as per approved sample and quality.
- 4.3 The compound for glazing to metal is to be a special non-hardening compound manufactured for the purpose and of a brand and quality approved by the Competent Authority.
- 4.4 While cutting glass, proper allowance be made for expansion. Each square of glazing to be in one whole sheet. On completion of work clean all glass inside and cut, replace all cracked scratched and broken panes and leave in good condition.

5.0 PAINT AND POLISHES:

- 5.1** All material required for the works shall be of specified and approved manufacturer, delivered to the site in the manufacturer's container's name or trade mark with a description of the contents and colour. All materials are to be stored on the site.
- 5.2** Spray painting with approved machines will be permitted only if written approval has been obtained from the Competent Authority prior to painting. No spraying will be permitted in the case of priming coats nor where the soiling of adjacent surfaces is likely to occur. The nozzle and pressure to be so operated as to give an even coating throughout to the satisfaction of the Competent Authority. The paint used for spraying is to comply generally with the specification concerned and is to be specially prepared by the manufacturer for spraying. Thinning of paint made for brushing will not be allowed.
- 5.3** Wood preservative shall be Solignum or other equal and approved impregnating wood preservative and all concealed woodwork shall be treated with wood preservative.
- 5.4** All brushes, tools, pots kettles etc. used in carrying out the work shall be clean and free from foreign matter and are to be thoroughly cleaned out before being used with a different type of class of materials.
- 5.5** All iron or steel surfaces shall be thoroughly scraped and rubbed with wire brushes and shall be entirely free from rust, mill scale etc. before applying the priming coat.
- 5.6** Surfaces of new wood work which to be painted are to be rubbed down, cleaned, down to the approval of the Competent Authority.
- 5.7** Surfaces of previously painted woodwork which are to be painted are to be cleaned down with soap and water, detergent solution or approved solvent to remove dirt, grease etc. Whilst wet the surfaces shall be flattened down with a suitable abrasive and then rinsed down and allowed to dry. Minor areas of defective paint shall be removed by scraping back to a firm edge and the exposed surface touched in with primer as described and soaked with putty. Where woodwork has been previously painted or polished and it is to be newly polished, with scraping, burning off or rubbing down and making surface properly.
- 5.8** Surfaces of previously painted metal which shall be painted are to be cleaned down and flattened down as described in surfaces of any rust and loose scale shall be removed completely by chipping, scraping and wire brushing back to the bare metal and touched in with primer as described.

5.0 UPHOLSTERY:

- 5.1** This will be of first class standard workmanship with webbing, no-sag springs, coiled springs, padding and filling as specified on drawing. Covering fabrics will be seen, tufted, and corded as shown on the drawing and as approved by the Competent Authority.

5.2 Cushion Vents: Brass “cushion Vents” should be installed at the back or under side or seat cushions (especially those covered in leather vinyl plastic or very tightly woven fabric) to allow air to escape easily and to prevent torn seems.

5.3 Materials: Finished timber shall be of the type specified. Furnishing fabrics, colour, pattern, substance to be as specified, no variations of this will be permitted unless with prior approval of the Competent Authority.

6.0 POLISH:

6.1 French polish:The basic material shall be shellac dissolved in mentholated spirit.

Preparation:

The timber must be well sanded and cleaned and the grain filled with grain filler. Any staining must be done before applying the polish.

Equipment:

The polishing rubber the most important implement in French polish shall consist of a pad of cotton wool, which acts as a reservoir for the polish, and a cover of soft white linen of cotton fabric, similar to a well-worn handkerchief which acts as a fitter. The rubber must never be dipped into the polish; it should be charged by pouring the polish on to the pad with the cover removed.

Application:

Work evenly over the surface with a slow figure-of-eight motion until the timber is coated with a thin layer of polish. The object is to apply a series of thin coats, allowing only a few minutes for drying between the coats. When a level and even-bodied surface is obtained the work is ready for the second stage i.e. spiriting off.

Allow the work to stand for at least eight hours, then take a fresh rubber with a double thickness of cover material and charge it with mentholated spirit. The object of spiriting off into and remove the rubber marks and to give the brilliance of finish.

Finally, work in the direction of the grain and continue until the surface is free from smears and rubber marks then leave to harden off.

6.2 Wax polish:

Wax polish shall contain silicones and driers. A good silicon wax is to be used not a creamy or spray. The timber shall be sealed first with another finish such as Ron seal, before applying wax.

Application:

Apply coat of the sealer by brush or cloth direct to the unfilled timber, working it well in and finishing evenly with the grain. Allow to dry thoroughly then sand lightly with fine abrasive

paper. Apply a heavy coat of wax by cloth on flat surfaces, with a stiff brush. Work it well into the timber and finish off by stroking with the grain before leaving to harden. Leave for four hours before rubbing up with a soft brush. Finally, buff the grain with a soft cloth.

6.03 Transparent Coloured Polyurethane (Melamine)

This shall be applied where natural grain of the wood is required to show. Polyurethane gives tough surface which resist chipping, scratching and boiling water.

Application:

Clean off all grease and wax with an abrasive and white spirit, this should not be applied in humid conditions. Apply the first coat, preferably of clear hard glaze with a cloth pad. Leave this to dry for at least six hours, then apply further coats with a paintbrush. If you wait for longer than 24 hours between coats, rub down the previous coat with fine glass paper or a medium grade of steel wool. Obtain a matt finish, if required, by giving a final coat of clear Reseal Matt coat.

7.0 TIMBER:

7.1 Only seasoned Teakwood to be used.

7.2 Use of Rose wood wherever specified.

7.3 All the wood shall be properly seasoned, natural growth and shall be free from worm holes, loose or dead knots or other defects, saw die square and shall not suffer warping, splitting or other defects.

7.4 The moisture content shall not exceed 12%.

7.5 All internal frame work shall be treated with approved wood preservative.

7.6 All wood brought to site should be clean shall not have any preservative or other coating/covering.

7.7 All rejected decayed, bad quality wood shall be immediately removed from site.

7.8 All wood brought to site must be stacked-stored properly as per instructions.

8.0 PLYWOOD:

1.2 Plywood/medium density fibre board/teak practical board/ Veneer shall be as specified in the approved list of manufacturers shall be used.

8.2 Commercial ply shall confirm I. S. I. 303 of approved make.

8.3 Marine plywood shall generally conform to generally I. S. 303 BWR or unless specified I.S.710-1980(BWP)

8.4 Particle board shall be phenol formaldehyde bonded and generally conform to I. S. 3087-1965.

8.5 Only 3mm to 4mm thick straight-grained groups matching approved veneers shall be used. No extra claim will be entertained for veneer if found of extra thickness.

SECTION "D"

IV.1 EXTERNAL PLASTERING (SAND FACED)

1. MATERIALS:

- a. CEMENT: Ordinary Portland cement 43 grade of approved make confirming to IS :269 OR P.P.C.
- b. SAND: River sand from the available sources like Tansa, Vaitarana, Mahad. The sand shall be hard, strong, dense, and clean with uncoated grains. The maximum size of the particles shall be 4.75 mm and shall be graded down. Silt content should not be more than 4% by weight and 7% by volume.
- c. WATER: Water used for mixing and curing shall be clean and free from injurious or deleterious materials, which are likely to affect the strength of plaster. Water should be potable.
- d. WATERPROOFING COMPOUND: The waterproofing compound shall be used as per manufacturers specifications.

2. PREPARATION OF SURFACE: -

All joints of the walls to be plastered should be raked out properly to a depth of 10mm. The RCC surface should be hacked properly to get good key to the plaster. Dust and loose mortar shall be brushed out. Efflorescence, if any shall be removed by scraping and brushing. The surface shall then be washed thoroughly with running water, cleaned and kept wet before plastering is commenced. If the surface becomes dry in spots such areas shall be moistened again to restore uniform suction.

3. PROPORTION OF MORTAR AND MIXING:

The proportion for external cement plaster for brick or concrete surfaces shall be 1:4 and 1:3 for the two coats viz base coat and finishing coat respectively. No more cement mortar shall be prepared than that can be used within half an hour. While hand mixing, cement and sand in the specified proportion shall be thoroughly mixed dry by turning over at least three or more times till a homogeneous and mixtures of uniform colour is obtained. Waterproofing compound of approved make shall be added according to manufacturer's specification.

Fresh and clean water shall be added gradually through a hose and thoroughly mixed so that the mix becomes homogenous and each particle of sand shall be completely covered with a film of wet cement. Mixing place shall be so arranged that no deleterious, extraneous materials get mixed with mortar nor the mixing water of the mortar shall flow out. Mixing place shall be clean, hard and impervious. Mixing trays made out of minimum 3 mm thick M.S. sheets of size 4'x 4' or 6" x6' or as required shall be used.

4. APPLICATION OF PLASTER:

Plastering shall be applied in two coats namely 12 mm thick undercoat and 8mm thick finishing coat. Plastering shall be started from the top and worked down towards the floor. To ensure

minimum specified thickness and a true plumb surface, patches of about 15mm thick shall be first applied, horizontally and vertically at not more than two meter intervals over the entire surface of dead walls to serve as gauges. The surfaces of these gauged areas shall be truly in the plane of the finished plaster surface.

5. UNDERCOAT:

The mortar shall then be applied on the wall, between the gauges with trowel. The mortar shall be applied in a uniform surface slightly more than the thickness of 12 mm and well pressed into the joints and on the surface and rubbed leveled with a flat wooden rule to give required thickness. Long straight edges reaching across the gauges shall be used with small upward and sideways movement at the time to ensure perfectly plane and even surface. Keys shall be formed on the surface by thoroughly combing it with wavy horizontal lines about 12mm apart and 3mm deep when the mortar is still plastic. This undercoat shall be cured for not less than two days before finishing coat is applied. Waterproofing compound of approved make shall be added according to manufacturer's specification to make the mortar watertight.

6. FINISHING COAT:

The finishing coat shall be applied after the undercoat has sufficiently set but not dried in any case within 48 hours. Sand to be used for second coat shall be sieved; sand passing through 3mm sieve shall be used. The finishing coat shall be struck uniformly over the first coat and firmly pressed and leveled using a batten. The surface then shall be firmly trowelled and sponge floated to remove excess moisture and bring the sand to the surface. Waterproofing compound shall be added in the mix. The finished surfaces shall be true and even and shall present uniform texture throughout.

When the finishing coat has hardened, the surface shall be kept moist continuously for 14 days. To prevent excessive evaporation on the sunny or windward side of the building in hot weather, gunny bags may be hung over on the outside of the plaster in the beginning and kept moist.

7. GENERAL:

All corners, junctions shall be truly vertical and horizontal as the case may be and shall be carefully finished.

In suspending work at the end of the day, the plaster shall be left clean to the line both horizontally and vertically. When recommencing the plastering, the edge of the old work shall be scraped, cleaned and wetted with cement slurry before the plaster is applied to the adjacent areas to enable the two properly join together. Plastering work shall be closed at the end of the day on the body of the wall and not nearer than 15cm to any wall ends/edges. The joint of first and second coat of plaster should not fall at the same location.

IV.2 NEERU FINISHED CEMENT PLASTER:

The cement mortar used shall be in proportion 1:5 unless otherwise specified. One part of Portland cement shall be dry mixed with five parts of sand; sufficient water shall then be added to make a homogenous mixture. Mortar usable within % hour only should be prepared at a time. Joints in brick and stone masonry shall be raked out to receive the plaster and concrete surface shall be hacked and washed well before plastering, the brickwork shall be kept wet for at least

four hours before plastering. A first coat of plaster of requisite thickness shall be applied and shall be finished with a coat of instant neeru.

Neeru shall be prepared using 4 parts of neeru with one part of ordinary Portland cement. Neeru shall be applied to plaster surface, which are partially set, but somewhat plastic, with steel trowel to a thickness slightly more by 1.5 mm. The ready mix NEERU of approved make available in the open market may be used for this purpose with addition of cements required.

IV.4 STRUCTURAL REPAIRS BY POLYMER MODIFIED MORTAR:

- A. Before taking up structural repair to any RCC structural member in a building it should be propped up adequately with steel props and braced during the period while it is under repair till it attains its final strength. The contractor shall submit his plan and methodology of propping before breaking the old concrete and get it approved by the consultant.
- B. After removing the plaster from the RCC members, the unsound /weak and cracked concrete from the deteriorated RCC members shall be removed carefully up to steel reinforcement with chisel and light weight hammer without disturbing the core concrete. Chipping shall continue until there are no cavities, which will cause an abrupt change in thickness of repaired surface.
- C. An undercut is made carefully up to 6mm behind the existing steel bars to facilitate the removal of rust entirely.
- D. Removing the rust carefully by stiff wire brush. Providing and applying rust remover RUSTICIDE — SS to the exposed steel by brush or cotton swab to remove the residual rust and to render the surface of steel passive so as to prevent fresh corrosion. Allowing remaining 24 hours and then brushing off any loose particles by means of wire brush.
- E. Ideally, the condition around the steel should remain permanently alkaline in the PH range of 11.50 to 13 .00 so that further corrosion can be altogether avoided. Providing and applying a passive coat of polymer and cement (POLYMER and CEMENT SLURRY) in the proportion of (1: 1. 5) by weight to the chemically de-rusted steel bars by brush in two coats. Care shall be taken that even the minutest part of the steel is not left uncovered.
- F. The surface to which the polymer mortar is to be applied shall be made dust free by washing the surface thoroughly with clean water.
- G. Primer cum bonding coat of polymer and cement slurry (POLYMER and CEMENT) in the proportion 1:1 by weight shall be applied on the surface of old concrete to have adequate joint between the old and new treatment.
- H. Immediately, after treating the surface with a bonding coat and whilst it is still wet/tacky, POLYMER MODIFIED MORTAR shall be applied on the primed surface. This polymer modified mortar shall consist of ONE KG POLYMER + 5 KG ORDINARY PORTLAN CEMENT + 15 KG CLEAN RIVER SAND (10 KGS PASSING 2mm +5 KGS 1mm. DOWN) or Quartz sand as specified in the item + 1 TO 1.5 LITERS WATER DEPENDING UPON DESIRED CONSISTENCY.

I. This mortar application shall be done within open time of the bonding coat. Only small quantities of mortar shall be mixed which shall be consumed in 45 minutes. The mortar shall be applied in layers of 20 mm thickness at a time as greater thickness may lead to slumping. Further coats shall be applied fairly in rapid successions within 15 -30 minutes. After application of mortar the surface shall be leveled using a wooden float or steel trowel. The final surface shall be left rough and furrowed 2mm deep with scratching tool horizontally to form a key for further coats.

J. Technical specification for bond coat (for the proper bonding between the old concrete and new polymer modified Mortar treatment and for the proper bonding between old concrete where there is no proper taccha (not hacked properly)) The surface to which polymer mortar is to be applied shall be made dust free by washing the surface thoroughly by clean water. Primer cum bonding coat of polymer and cement slurry (polymer and cement) in the proportion 1:1 by weight shall be applied on the surface of old concrete to have adequate joint (bonding) between the old and new treatment. Immediately after treating the surface with bonding coat and while it is stillwet/tacky polymer Modified mortar should be applied on the primed surface. The mortar application shall be done within the open time of the bonding coat which varies from brand to brand. Before applying bonding coat, the surface shall be made wet ensuring that it is saturated but free of surface water. The bonding slurry shall be worked well into the surface of the parent body by using stiff brush ensuring that no pinholes are visible. The bonding slurry shall not be applied at a thickness in excess of 2mm.

K. Technical specification for dash coat (for damaged brick masonry and where thickness of the plaster is more than 1" or more than two coats of plastering is required). All the loose masonry joints between the bricks the bricks and cement blocks etc should be cleaned properly. The joints should be filled up with cement mortar with cement sand ratio of 1:4 with addition of waterproofing compound of 150ml for bag of cement (or as per manufactures specification). Then one layer of dash coat should be applied on the wall surface with cement sand mortar ratio of 1:4 with addition of waterproofing compound of 15m (or as per manufactures specifications) for one bag of cement and using sm all pieces of brickbats in the mortar to the required level. The wall surface should be damp before

application of the dash coat. This treatment is applicable where the brick masonry and the cement block masonry damaged after the removal of the plaster, where the thickness of the plaster is more than 1" or where more than two coats of plastering is required. Curing shall be done for 7 days before application for further coats of plastering.

NOTES:

1. Before applying bonding coat, the surface shall be made wet ensuring that it is a saturated but free of surface water.
2. The bonding slurry shall be worked well into the surface of the parent body using stiff brush ensuring that no pinholes are visible. Bonding slurry shall not be applied at a thickness in excess of 2mm.

3. Curing of the treatment shall be done by damp gunny bags after minimum of 48 hours of initial setting time.
4. Because of rust, if reduction in size of reinforcing bars is more than additional reinforcement shall be provided and paid under relevant item.
5. The specified polymers or their equivalent may be used.
6. All works relating to polymers shall be as per instructions / guidance / method of application by manufacturers.

IV.5 MICRO CONCRETE:

Supports: The R C members should be properly supported before chipping the spalled /loose concrete. The props provided shall be adequate to provide sufficient structural support to the load carrying members.

- a)
- b)
- d)
- e)
- f)

Surface Preparation of concrete:

All the spalled cracked concrete or any other pre-applied mortar shall be removed by chipping to expose the reinforcing bars. The concrete shall be chipped to a minimum depth of 10mm behind the reinforcing bars. The areas to be repaired shall be profiled to get rectangular or square shape with an inward tapering

Surface preparation of reinforcement:

The exposed reinforcing bars should be cleaned thoroughly to remove all traces of rust, scales, etc., by using wire brush, emery paper etc. The lateral ties/stirrups shall also be cleaned in the same way. After removal of corroded portion, the diameter of the reinforcement shall be checked and compared with the drawings.

Edge Provision of additional reinforcement:

As the diameter of reinforcing bars is reduced substantially (say >20%) additional bars shall be provided as per the design. This additional reinforcement shall be properly anchored to the existing concrete by providing adequate shear connectors. Weld mesh may also be provided if found necessary.

Provision of shear connectors:

Shear connectors of 8mm diameter shall be provided in holes of 14mm diameter and 75 mm deep. These shall be provided at every 500mm c/c on all the faces of the beams in staggered form. The holes shall be cleaned with compressed air or water jet to remove all the dust etc. and then the shear connectors shall be fixed in the holes using polyester resin anchor grout.

Priming of reinforcement bars:

The exposed and cleaned reinforcing bar shall be provided with a coat of Epoxy Zinc Primer such that the coated film will have a dry film thickness of 40 microns. The film shall-be continuous especially in the regions where pitting, imperfections etc., are present on the surface of the bars.

It is important that the rear portion of the bars should not be left without coating. A second coat if needed may be provided to achieve a uniform and continuous film. The additional reinforcement provided and also the shear connectors shall be coated with Epoxy Zinc Primer. The weld mesh if provided shall also be coated with Epoxy Zinc Primer.

Provision of Epoxy based bonding agent:

The base and hardener component of epoxy resin based bonding agent must be mixed well to get a uniform grey coloured mix. Apply the material to properly cleaned and dry concrete substrate using stiff nylon brush by scrubbing it well into the substrate. The coat should be uniform and well spread on the entire surface area of the repair patch. The mixed material must be applied before the elapse of its pot life and the new repair mortar must be applied before the elapse of overlay time. As a fully dried epoxy resin coat acts as debonding layer, the repair material should be applied whilst the bonding coat is tacky. In case the applied epoxy bond coat gets dry, an extra coat should be applied before application of repair mortar.

g) Formwork and shuttering:

Slurry tight and strong form work shall be provided. The shuttering for encasement shall be kept ready such that the formwork shall be placed in position and fixed such that the micro concrete can be poured into the formwork within the overlay time of the bonding agent (5 hours). Adequate supports shall be provided for the formwork. Care should be taken to ensure leak proof shuttering. Under no circumstance the slurry should flow out of the shuttering during pouring of micro concrete.

h) Mixing of micro concrete:

It should be mixed using the appropriate water powder ratio as mentioned in the product data sheet. The mixing shall be done mechanically and under no circumstance hand mixing shall be done. Mixing shall be carried out for 3 to 5 minutes to ensure that homogeneous mix is obtained without any bleeding or segregation. In hot climate ice cooled water shall be used to maintain the temperature of mixed material. If the encasing thickness is more than 100 mm, add stone aggregates up to 50 % by weight of micro concrete to the mixed micro concrete directly into the mixer hopper. The stone aggregates must be 12 mm and down and shall be clean, washed and dried. The mixing should be done for 3 minutes in mixer and then pre-weighed stone aggregates into the mixer. Mix further for 2 minutes till lump free mix is obtained

i) Deshuttering:

The shuttering from the sides of the R C members shall be removed after a period of 24 hours. However, the formwork of the soffit shall be retained and removed after 3 days.

j) Pouring of micro concrete:

The mixer should be poured into the formwork using a suitable funnel or through a hose pipe. It must be poured from one end only. A suitable hopper / funnel arrangement shall be made at site to facilitate the pouring operations. The pouring operation shall be continuous, and it shall not be stopped unless the job is completed. To achieve this sufficient mixers / drilling machines and work force shall be arranged at site.

k) Curing:

All the repaired and encased area shall be fully cured as per standard concrete practices. Curing compound shall be used for effective curing of sides and soffits of beams. If a curing compound is applied, care shall be taken to ensure that proper surface preparation is carried out so as to remove any traces of curing compound on the surface. If this is not done, it may lead to debonding of any protective coating applied on top.

Iv.6 PLAIN CEMENT CONCRETE

In plain cement concrete coarse aggregate should be hard durable and free from impurities. Fine aggregate should contain sharp, angular grain.

- Cement should be fresh Portland cement.
- Mixing should be done by hand mixing or by machine mixing.
- Laying and compaction should be done before setting of concrete i.e. within 30 min.
- Curing should be done for minimum 14 days.

• DETAIL SPECIFICATION

MATERIALS

Coarse aggregate:

Aggregates shall comply with the requirements of IS 383. It shall be crushed or broken from hard stone from the approved quarry.

- It shall be hard, strong, dense and durable, clean and free from soft friable, thin, flat, elongated or laminated, flaky pieces and shall be roughly cubical in shape.
- It shall be clean and free from dirt and any other foreign matter.
- Coarse aggregate may be graveled, may either be river bed shingle or pit graveled. It shall be sound, hard, clean suitably graded in size.
- This shall be free from flat particles of shale, powdered clay, slate, loam and other impurities.
- Gravel shall have to be washed if it contains soil materials adhering to it.
- Unless specially mentioned the size of the coarse aggregate shall be 20 mm graded down and shall be retained in 5mm square mesh so that the voids do not exceed 42%.

Fine aggregate:

- Aggregate most of which passes 4.75mm IS sieve is known as fine aggregate. Sand as fine aggregate shall be coarse, consisting of sharp, angular grains and be of standard specification.
- Crushed dust stone may also be used as fine aggregate.

Cement:

- Cements shall be phrased as Portland cement and confirmed to the ISI specification.
- It should have required compressive and tensile strength and fineness.

Water:

- Water used shall be clean and reasonably free from injurious quantities of deleterious materials such as oils, acids, alkalis, salts and vegetable growth.
- Generally potable water shall be used.
- The pH value of the water should not be less than 6.

- The maximum permissible limits for solids shall be as per IS 456:2000 Clause 5.4,

PROPORTION

- Proportioning of cement, sand and coarse aggregate shall be 1:2:4 or as specified.
- Coarse aggregate and sand shall be measured by measuring box of 30cmx30cmx38cm of suitable size equivalent to one bag cement of 1/30 mor 0.035 m³.
- Cement shall be measured by bag weighing 50kg.
- Sand shall be measured on the basis of its dry volume.
- While measuring the aggregate sacking, ramming or hammering shall not be done.
- If damp sand is used compensation shall be made by adding additional sand to the extent required for the bulking of damp sand.

MIXING

Hand mixing:

- Hand mixing by batches shall be permitted on small works.
- The mixing shall be done on a clean water tight masonry or concrete slab or steel plate platform.
- Measured quantity of sand shall be sprayed evenly. The cement shall be dumped on the sand and distributed evenly. The sand and cement shall be mixed thoroughly with spade turning the mixture over and over again until its even colour throughout and free from streaks. The measured quantity of coarse aggregate shall be sprayed out and the sand cement mixture shall be sprayed on its top.
- This shall be mixed at least three times by shoveling and turning over by twist from centre to side then back to the centre and again to the sides.
- A hollow shall be made in the middle of the mixed pile.
- Three quarters of the total quantity of water required shall be added while the material is turned in toward the centre with spades.
- The remaining water shall be added by water can fitted with rose head slowly turning the whole mixtures over and over until a uniform colour and consistency is obtained throughout the pile.

Machine Mixing:

- Measured quantity of dry coarse aggregate, fine aggregate and cement shall be placed in the hopper respectively.
- The dry materials shall be mixed in the mixing drum for at least four turns of the drum after which correct quantity of water shall be added gradually while the drum is in motion.
- The total quantity of water for the mixing shall be introduced before 25% of the mixing time has elapsed and shall be regulated to achieve the specific water cement ratio.
- The mixing shall be thorough to have a plastic mix of uniform colour.

MIXING TIME:

- The materials shall be mixed in a drum for a period of not less than 2 min and until a uniform colour and consistency obtained.
- The time shall be counted from the moment all the materials have been put into the drum.

CONSISTENCY

- The quantity of water to be used for each mix of 50kg cement to give the required consistency shall be as follows
 - Not more than 34 lit — 1:3:6 mix
 - Not more than 30lit — 1:2:4 mix
 - Not more than 27lit — 1:1 %:3 mix
 - Not more than 25lit — 1:1:2 mix
- The quantity of water shall be regulated by carrying out regular slump test.

LAYING

- The entire concrete used in the work shall be laid gently in layers not exceeding 15cm and shall be thoroughly vibrated by means of mechanical vibrators till a dense concrete is obtained.
- Hand compaction shall be done with the help of punning rods and tamping rods and tamping with the wooden tampers so that concrete is thoroughly compacted and completely walked into the corners of the form work.
- The layers of concrete shall be so placed that the bottom layer does not finally sit before the top layer is placed.
- Compaction shall be completed before the initial setting starts that is within thirty minutes of addition of water to the dry mixture.

PROTECTION AND CURING

Freshly laid concrete shall be protected from rain by suitable covering After the concrete as begun to harden, that is about one to two hours after its laying it shall be protected with moist gunny bags, sand or any other materials against quick drying. After 24hrs of lying of concrete the surface shall be cured by flooding with water of about 25mm depth or by covering with weight absorbent materials .Curing shall be done for a minimum period of 14 days.

FORMWORK

If centering and shuttering are required to be done for this work. This shall be done in accordance with the specifications for form work under R.C.C

IV.7 VACCUM DEWATERED CONCRETING / TREMIX FLOORING

The surface to receive flooring shall be clean, free from dirt and free from foreign material. Any undulations or mortar remaining on the floor shall be trimmed. The base shall be ceaned and watered before laying the floor. Base course shall be trimmed. The finished surface shall be kept wet for a maximum period of one week. Concreting shall have a concrete base of M20 of specified thickness. Floor hardener (Optional) - @3kG/Sqm or as per the Manufacturers' recommendations. Execution

Mix cement, sand and aggregates as per grade M25 thoroughly with water to get an appropriate consistency in a mechanical concrete mixer. Prepared concrete shall be laid immediately after mixing. The base shall be free from water and other foreign materials, dust and dirt. A coat of cement slurry of the consistency of thick cream shall be brushed on the surface of the base course. The concrete shall then be spread over this base evenly and leveled carefully. Low areas shall be filled with concrete and humps removed. Devacuumization shall be done for removing the voids. The whole concrete surface shall be

leveled, compacted by ramming and trowelling. Prepared surface shall be allowed to set. Hardner screed Hard top to be prepared as per the specifications with Nito hardner and one part of dry cement.

The hard top shall be provided over concrete base immediately after it is set, compacted and leveled with a steel trowel. The surface shall be trowelled to bring the hardener coat to a leveled surface. Excessive troweling shall be avoided. After the initial set, further compaction shall be done by steel troweling. Final brushing shall be made before the floor top becomes too hard.

IV.6 WATER TANK (UNDER - GROUND & OVER HEAD) INSIDE WATERPROOFING:

- a) Breaking and removing existing treatment layer up to RCC pardi original concrete surface. The breaking shall be carried out by electric hammer drill to prevent the chisel entering the slab and to ensure less vibration within the body of RCC works.
- b) Stacking the debris in any corner of the premises and carting away the debris.
- c) Making the grooves at the corner junctions, observe the internal Pardi surface, Any damage to the tank slab or side pardis shall be, made good by rich concrete after treating the exposed steel. Sealing all the corner junction grooves with rich cement mortar and metal no 2. Embedded in it.
- d) Providing and grouting injection nipples by cement grout with waterproofing chemical added to it in all four corners to seal the honeycomb and voids routes to make the concrete impervious.
- e) Providing and applying waterproof cement mortar plaster 15 to 20 mm thick in proportion 1:3 mixed with waterproofing compound @ 2% by weight of the cement. to the side walls.
- f) The bottom slab of the tank shall be treated with brickbat coba or IPS on the same day.
- g) The ceiling of the tank shall be plastered prior to the activity of plastering of pardis and bottom slab.
- h) Curing for 10 hours and then filling the tank to its fullest capacity by water.

Notes:

1. The existing inlet, outlet, overflow and washout pipes shall be checked and replaced with new C class G.I pipes before carrying out actual Waterproofing work. The holes made in RCC walls to replace the pipes shall be closed by rich concrete and grouted by injection grouting to remove all possibilities of leak through their joints.
2. Separate arrangement for supply of water shall have to be made by loop lines with other tank to have supply of water in the flats.

IV.7 Terrace Water Proofing with Brick Bat Coba Treatment:

- a. The slopes of the existing treatment should be studied before commencing treatment. The contractor should prepare and submit to the consultant a sketch/drawing of the terrace slab showing the proposed waterproofing and the slopes of the proposed treatment with arrows and the positions of the rain water pipe outlets.
- b. Breaking and removing the existing treatment up to RCC slab level and stacking the debris and carting away the same.

- c. Removing the plaster from the parapet walls including the round wattas up to the roof slab top level.
- d. Making grooves at junctions of walls and roof slab in the form of 'V' shape. Fixing pieces of brickbats and 20mm stone metal in cement mortar (1:3) in the V groove at the junction of the parapet wall and roof slab to form the watta.
- e. Hacking the slab surface to be treated with tancha to remove loose mortar scaling. This surface shall be brushed with wire brushes to remove all loose particles and dust. The surface shall then be thoroughly broom washed with plenty of water and left to dry.
- f. Examining the area carefully for any loose patches in base concrete, honeycombs or hairline cracks. These defects shall then be first repaired by suitable treatments. The cracks should be located, widened, made free from loose particles and then filled with polymer mortar prepared by mixing MASTER EMACO-SBR-2(or with approved chemicals), fresh cement and quartz sand in proportion of 1:5:15 by weight without adding water. The honeycombed areas shall be cement grouted.
- g. The prepared surface shall then be watered again and washed thoroughly. Cement slurry prepared by mixing one bag of cement in hundred liters of water and water proofing compound and stirred well to honey consistency shall be spread over the surface uniformly and allow it to penetrate uniformly over this cleaned surface.
- h. The brickbats of required size and shape are then laid to proper levels and slope not flatter than 1 in 100 over cement mortar bedding minimum 25 mm thick in cement mortar 1:4 mixed with water proofing compound laid to the required slope in the specified manner. The brickbats shall be so planted on the cement mortar layer as to partly embed in the mortar and partly project above the mortar bedding and firmly secured. 15mm gap should be maintained between the brickbats while planting.
- i. The brickbats so laid should be allowed to set for at least one week and kept under water. Any seepage or leakage, if noticed, underside the ceiling shall be treated again.
- j. The finishing layer shall be of cement mortar 1:3 mixed with integral water proofing compound not less than 1% of weight of cement, 20 mm thick including leveling the surface by wooden float. The layer so laid shall be joint less, well compacted and troweled vigorously till it becomes hard with IPS finish making marks of false squares 300mm x 300 mm to give the appearance of tiles or broom finished suitable for receiving china mosaic finish..
- k. After the waterproofing work is completed the terrace shall be cured by flooding with 3" water on the terrace for a minimum period of 15 days and tested for water tightness. Providing & laying the flooring of broken china-mosaic (broken pieces of china glazed tiles) of approved colour set in 25mm, average bed of cement mortar 1:3 mixed with approved chemical waterproofing compound to correct level and slope not less than (1:100), well compacted and finished; such that minimum coverage of china mosaic chips is about 90% of the total area of slab. the above treatment shall continue along the inner side of parapet or the adjoining wall up to 30cm. high including providing round vata in

cement mortar 1:3 mixed with approved chemical waterproofing compound in round shape with necessary groove and drip mould or kani etc and also finished as per the above specifications, etc complete. The whole terrace so finished shall be flooded with 3" deep water & stored for a minimum period of one week for curing and for final test.

NOTE:

- a) The above treatment shall be continued along with the inner sides of adjoining parapet walls up to a height of 300 mm in the shape of parabolic watta.
- b) The construction joints shall be taken at ridges and should be made properly watertight and monolithic.
- c) The total thickness of the treatment shall be average 115mm with at least 50mm at drain points.
- d) If it is desired to cover the treatment with decorative china chips, the surface will be finished rough to receive the same.
- e) The rain water pipe outlets should be provided with suitable C.I. Gratings with frames and the area surrounding the outlets should be made waterproof. The work should be done as per BOQ item specifications for the above items.

IV. 8. Removing the existing IPS, repairing Brickbat Coba in patches & redoing IPS.

- a) The work involves removing the existing top IPS layer without disturbing the B.B.Coba. below and this will be paid separately in relevant item.
- b) This involves repairing the existing loose B.B. coba in patches.
- c) This involves providing and laying new IPS LAYER to proper slope towards the rain water pipes after ensuring the patch repair of B.B.coba.

IV.9 Terrace Water Proofing with APP Modified Bituminous Membrane (without breaking the existing treatment) (Asian Paints' SMARTCARE, Dr. FIXIT Torch Shield, STP, etc.

- a) The terrace surface should be inspected carefully and if any pot holes, cracks found they should filled up with polymer modified mortar/crack filler. Hollow portions should be removed till hard portions and filled with polymer modified mortar. Clean the surface with brush or broom so that it is free from dust & loose particles.
- b) Cement mortar triangular watta should be provided at the junctions of parapet & slab.
- c) Apply one coat of bitumen based primer as per recommended coverage by the Manufacturers and allow it to dry for 6-8 hours.
- d) Unroll the membrane and align with proper markings and reroll the membrane to original form so that the alignment is not disturbed.
- e) Point the torch towards the primed surface and then to the underside of the membrane roll. Torch till the compound reaches its softening point. Roll the membrane forward while firmly pressing it to the substrate so that it bonds.
- f) Keep overlap margin for minimum 100 mm between two adjoining membranes for end laps and minimum 50mm for side laps.
- g) Finally application of 1 coat of U.V. Reflective Silver coating in Non trafficable area. And for foot trafficable area concrete or mortar screed shall be laid which shall be paid separately.
- h) Ensure that membrane is applied at least 6" inside the rain water pipe outlets.

Iv. 10 Terrace waterproofing system with Elastomeric coating. (without breaking the existing treatment) NEW COAT OF Dr FIXIT,

- a) The terrace surface should be inspected carefully and if any pot holes, cracks found they should filled up with polymer modified mortar/crack filler. Hollow portions should be removed till hard portions and filled with polymer modified mortar. Clean the surface with brush or broom so that it is free from dust & loose particles.
- b) Cement mortar triangular watta should be provided at the junctions of parapet & slab.
- c) Ensure that roof slope is a minimum of 1:100 to enable proper flow of rain water towards Rain water outlets.
- d) Apply one primer coat and the elastomeric product as per the specifications of the Manufacturers.
- e) Guarantee -10 years for which bidder has to provide guarantee for waterproofing in following format.



FORM OF GUARANTEE FOR WATER PROOFING

(on Rs 500/- Non-Judicial stamp paper)

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 State Bank of India , shall remain 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 ten years from the date of virtual Completion of the work i.e. from to ,the same shall be rectified by us without any extra cost to State 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.

Seal & Signature of the Contractor

Note: Contractor will submit Performance Bank Guarantee for 10 years having value of 10% of total water proofing work.

The work should be done as per BOQ item specifications.

IV. 11 SCAFFOLDING:

Only strong and good quality bamboos about 3" dia shall be used. The old, broken and deteriorated bamboos should not be used but should be removed from the site.

- 1) Independent or double or double pole Bamboo scaffolding shall be erected with two sets of vertical bamboos 2'6" x 3'0" centre to centre, the inner bamboo being 3" to 6" away from wall surface.
- 2) No holes shall be made in the walls or slab to support the scaffolding.
- 3) Every scaffold shall be braced by means of longitudinal and transverse bracing system so as to form a rigid a stable structure. So also every scaffold shall be effectively tied to the windows or box grills to prevent movements of scaffold either away or towards the building.
- 4) Where heavy wind or gale force is expected, it would be necessary to take special precautions and install additional ties to the scaffold to prevent overturning & collapse.
- 5) Guide rails and toe boards shall be provided for all working platforms to ensure safety of workmen.
- 6) Workmen shall not be allowed to work on scaffolds during storms or high winds.
- 7) During dismantling of scaffolds necessary precautions shall be taken to prevent injury to persons due to fall of loose materials. The bracings and other members of the scaffold shall not be removed prematurely, while dismantling the entire scaffold, so as to avoid danger of collapse.
- 8) When scaffolds are to be used for a long period, the scaffolding shall be inspected from time to time to ensure its stability and rigidity.
- 9) The ropes and pulleys used in hoisting or lowering materials or any means of suspensions shall be of durable quality, adequate strength and free from defects.

TS: 43: -

IV.12 RISING DAMPNES IN GROUND WALLS ABOVE SKIRTING:

- a. Drilling holes at 30-degree inclination towards the bottom of wall and depth should be about 75% of the wall width. These holes should be drilled at lowest possible level and preferably in two layers.
- b. The spacing of holes will depend upon the porosity of the super structure but approximately 30 cm horizontally and 15 cm vertically.
- c. After cleaning the holes i.e. free of dust SAMAFIT VK 1 —a chemical damp proof solution should be poured in these pre-made holes and after some time when SAMAFIT VK1 is totally absorbed the hole should be filled with SAMAFIT VK2. The chemical reaction of silification converts the water absorbing capillaries to water repelling and dampness is thereby depressed. The approximate consumption of SAMAFIT should be 4-5 times the volume of the hole.

NOTE:

1. SAMAFIT =VK liquid is damp proofing chemical for rising dampness. It depresses the dampness and protects the masonry walls.

2. The consumption of SAMAFIT —VK depends upon the absorption of the areas under treatment.

IV.13 PAINTING:

Single or double scaffolding or ladder shall be used without damaging or scratching the surface to be painted. No bamboos or planks shall rest on or touch the surface, which is being painted. Where ladders are to be used, pieces of old gunny bags shall be tied on their tops to avoid damage or scratches to walls.

Material:

- a) Type & Quality of paint: Paint to be used shall be of approved make and colour .The contractor shall bring Approved paints, oils or varnishes in their original containers in the sealed condition to the site of work. It is imperative that the contractor should obtain Technical committee's permission in regard to make & colour of paint to use for the various items of work. The painting work shall be carried out as directed by the consultant/ Technical committee, keeping in view the recommendations of the manufacturers before commencement of the work, during & after completion of the work, who shall certify the suitability of the surface to receive painting & the paint before use etc.
- b) Engineering practices: In any event the following engineering practices shall always be followed.
 - 1) No exterior or exposed painting shall be carried out under adverse weather conditions such as rain, extreme humidity, dust storms etc.
 - 2) The work shall be preferably be carried out in shade to avoid blistering or wrinkling due to direct sunlight.
 - 3) All surfaces to be painted shall be free of loose matter, efflorescence dust etc. before application of each coat.
 - 4) No paint shall be applied to works, which are internally or superficially damp.

SURFACE PREPARATION:

General:

- I. All the exterior surface shall be thoroughly cleaned by wire brushing to remove dust, greasy and any loose material taking care to see that sand face texture is not disturbed. Surface shall be thoroughly washed with running water to remove all dirt, dust, previous growth of fungus & algae loosely adhering particles and also lower down the content of soluble salts at surface level. Surface shall be moistened immediately before applying paint.

Oil grease film shall be washed off with an acid that is non injurious to the surface or shop primers and rinsed off completely with chalking. This treatment shall be done with greater care on the top of the awnings, sunshades, parapets & other horizontal surfaces where water is likely to accumulate during monsoon. Previously painted surfaces with oil paint shall be sanded thoroughly to remove loose particles & made dull & matt for better adhesion. The exterior surface shall not be affected by any water seepage or by constant dampness. In case of painting during the rains allow for 2-3 days of total sunshine for the surface to dry out completely before commencing painting.

- II. Before starting the work, contractor shall obtain the approval of the engineer regarding the soundness and readiness of the surface to be painted on.
- III. The plastered surfaces shall be carefully rubbed smooth and thoroughly cleaned with fresh water.

METAL:

- 1) All metal surfaces shall be absolutely clean, dry and free from wax, grease or dried soap films. Grease shall be removed by proprietary brands of approved solvent cleaner or other solutions or detergents. All steel and iron surfaces shall in addition be freed from dust, rust and scales. This shall be done by wire brushing and scraping, sand papering. Ensure that the surface IS free from moisture, loose particles of old paint. Surface shall then be coated with approved quality primer compatible for the material of surface to be painted.

Paint Application:

The contractor will make suitable samples at the site for owner [consultants approval before taking up the work in hand & they will proceed with the works, only after getting owner /consultants approval for the same.

The contractor has to purchase the paint only from authorized dealers of approved paint. The application of paint shall be as per specification derived from approved paint Companies. Contractor has to maintain daily receipt and consumption record of paint and submit detailed reconciliation statement with each running bills and overall reconciliation statement at the time of final bill.

After award of work contractor has to submit min 3 options of color schemes in the form of elevation by taking actual photo at site

a) Brush Quality:

The brushes shall be best quality, made of hog bristles or nylon bristles.

b) Use and maintenance of brushes:

New brush shall be washed with soap water & broken shall be removed. Brush shall be dipped in the paint and shall be rubbed against the side s of the kettle after completion of painting. The brush shall be scrapped clean with blunt putty, knife, rubbed on a suitable surface, then rinsed out in thinner and spun. Dry. Brush should be thoroughly washed in soap water and dried.

ϕ) Brush Technique:

- 1) Painted surface shall be free from brush marks.
- 2) The pressure of brush must be equal for all strokes.

c.1) Number of coats: All coats shall be thoroughly dry before being papered or before the succeeding coat is applied. Coats of painting as specified are intended to cover surfaces perfectly. In case the surface is not covered properly by applying the specified number of coats, further coats shall be applied by contractor when so directed by the consultant free of cost.

c.2) Paint Test Panel: - In case of selection of special shades and colour (not available in standard shades) the contractor shall mix different shades and prepare test panels of minimum

size of 1meter square as per instructions of the Engineers and obtain approval prior to the application of finishing coat.

φ.3) Any damage caused during painting work to be the existing works [surfaces shall be made good by the contractor at no extra cost.

OIL EMULSION (OIL BOUND) WASHABLE DISTEMPERING

1. Materials Oil emulsion (Oil Bound) washable distemper (IS : 428) of approved brand and manufacture shall be used. The primer where used as on new work shall be cement primer or distemper primer as described in the item. These shall be of the same manufacture as distemper. The distemper shall be diluted with water or any other prescribed thinner in a manner recommended by the manufacturer. Only sufficient quantity of distemper required for day's work shall be prepared. The distemper and primer shall be brought by the contractor in sealed tins in sufficient quantities at a time to suffice for a fortnight's work, and the same shall be kept in the joint custody of the contractor and the Engineer-in-Charge. The empty tins shall not be removed from the site of work, till this item of work has been completed and passed by the Engineer in-Charge.

2. Preparation of the Surface

For new work the surface shall be thoroughly cleaned of dust, old white or colour wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying putty, made of plaster of paris mixed with water on the entire surface including filling up the undulations and then sand papering the same after it is dry. In the case of old work, all loose pieces and scales shall be removed by sand papering. The surface shall be cleaned of all grease, dirt etc. Pitting in plaster shall be made good with plaster of paris mixed with the colour to be used. The surface shall then be rubbed down again with a fine grade sand paper and made smooth. A coat of the distemper shall be applied over the patches. The patched surface shall be allowed to dry thoroughly before the regular coat of distemper is applied.

3. Application

Priming Coat : The priming coat shall be with distemper primer or cement primer, as required in the description of the item. The application of the distemper primer shall be as described earlier.

Note : If the wall surface plaster has not dried completely, cement primer shall be applied before distempering the walls. But if distempering is done after the wall surface is dried completely, distemper primer shall be applied.

Oil bound distemper is not recommended to be applied, within six months of the completion of wall plaster. However, newly plastered surfaces if required to be distempered before a period of six months shall be given a coat of alkali resistant priming

paint conforming to IS 109 and allowed to dry for at least 48 hours before distempering is commenced.

For old work no primer coat is necessary

Distemper Coat : For new work, after the primer coat has dried for at least 48 hours, the surface shall be lightly sand papered to make it smooth for receiving the distemper, taking **care not to rub out the priming coat. All loose particles shall be dusted off after rubbing.**

One coat of distemper properly diluted with thinner (water or other liquid as stipulated by the manufacturer) shall be applied with brushes in horizontal strokes followed immediately by vertical ones which together constitute one coat.

The subsequent coats shall be applied in the same way. Two or more coats of distemper as are found necessary shall be applied over the primer coat to obtain an even shade. A time interval of at least 24 hours shall be allowed between successive coats to permit proper drying of the preceding coat.

For old work the distemper shall be applied over the prepared surface in the same manner as in new work. One or more coats of distemper as are found necessary shall be applied to

obtain an even and uniform shade.

15 cm double bristled distemper brushes shall be used. After each days work, brushes shall be thoroughly washed in hot water with soap solution and hung down to dry. Old brushes which are dirty and caked with distemper shall not be used on the work.

WALL PAINTING WITH PLASTIC EMULSION PAINT

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.

Plastic emulsion paint as per IS 5411 of approved brand and manufacture and of the required shade shall be used.

Painting on New Surface

Surface Preparation

The surface shall be thoroughly cleaned and dusted off. All rust, dirt, scales, smoke splashes, mortar droppings and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Engineer-in-Charge after inspection, before painting is commenced.

Application :

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

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. 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.

Precautions

- a) 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.
- b) In the preparation of wall for plastic emulsion painting, no oil base putties shall be used in filling cracks, holes etc.
- c) Splashes on floors etc. shall be cleaned out without delay as they will be difficult to remove after hardening.
- d) Washing of surfaces treated with emulsion paints shall not be done within 3 to 4 weeks of application.

Painting on Old Surface

Preparation of Surface :

This shall be done, generally as specified in 13.31.3.1 except that the surface before application of paint shall be flattened well to get the proper flat velvety finish after painting.

Cement based paint:

The surface shall be thoroughly wetted with clean water before waterproof cement container and two volumes of cement paint is applied. Unless otherwise specified by their manufacturers, one volume of water in a clean container and two volumes of cement paint should be added and stirred to a thick paste. This paste should be diluted to a suitable paste consistency by adding, while stirring a further % to one volume of water. Under no circumstances should additional water be added. The colour shade of paint will be as approved by the consultants'. The water proof cement paint shall be mixed in such quantities as can be used within an hour of its mixing as otherwise the mixture will be and thicken, affecting flow and finish. The solution shall be stirred at the period of application.

White /Colour wash.

The surface to be white /colour washed shall be scraped thoroughly of all the old material. All loose dust, dirt, mortar droppings shall then be removed. All undulations shall be made up with putty made out of plaster of Paris .A coat of white wash shall be applied over the patches and repairs.

Surface shall then be applied with 3 coats of white wash. The white wash shall be prepared from fresh white lime stone .The lime shall be allowed to stand for a period of 24 hours and then shall be screened through a clean coarse cloth. Pidilite DDL shall be added to the mix as per manufacturer's instructions. Water shall be added at the rate of 5 liters per kg of limestone of a milky solution. Indigo (Neel) up to 3 gm per KG of limestone shall be added to the mix and well stirred. This solution shall then be applied by brush to the surface in 3 coats to obtain a uniform surface. Each coat shall be applied after previous coat has dried up. Each

coat shall be inspected & approved by the consultants before subsequent coat is applied. No portion of the surface shall be left out initially to be patched up later on.

EXTERIOR PAINTS

A coat of paint not only creates an attractive appearance for years to come, it also protects exterior surfaces from moisture, fading and temperature changes, A high-quality paint will provide better protection, complete coverage, easier application and longer-lasting results.

Quality:

This paint is especially important for exterior projects, which are subjected to harsh weather conditions day in day out. Take some time to consider long-term benefits of better paints in addition to their initial cost. A good paint will require fewer coats & last longer.

Water based: - Consist of a pigment & resin in a solvent thinner. When thinners evaporate, the resins form a hard coating, leaving behind the pigment (which provides the color)

Oil Based: - Consist of a pigment & binder with water used as carrier.

Filling Cracks in External walls/Elevations:

Identifying the cracks, grooving in V — Shape with minimum depth of 10 to 25 mm as per requirement cleaning with Jet wash and treating with approved Stucco or Ultra tech crack sealant compound/ or equivalent as per sealant manufacturer's specifications and Technical specifications

100% ACRYLIC PAINT

- A.** Suitable levels & types of pigment are used without high levels of "ex-tender" pigments. This provides a high degree of hiding power, while not compromising durability & resistance to cracking & flaking. Quality products are not made with high proportions of porous extenders that foster chalking or will cause the paint to absorb stains.
- B.** A high solids content helps provide a thick dry film which in turn is important for key properties including hiding, resistance to cracking & mildew, and general durability.
- C.** Generous portions of ingredients that enhance particular properties, such as mildewcides that control mildew growth in exterior applications, and titanium dioxide that maximizes hiding and whiteness.

Painting MS Railing with enamel paint :

(a) Hand wire brushing

Rust, mill, old coatings and other foreign matter, shall be removed by hammering, scrapping tools, emery paper cleaning, wire brushing or combination of the above methods. On completion of cleaning, loose material shall be removed from the surface by clean rags and the surface shall be brushed, swept, dusted and blow off with compressed air/steam to remove all loose matter. Finally the surface may be washed with water and dried for effective cleaning.

(b) Coating Procedure and Application

Surface shall not be coated in rain, wind or in environment where injurious airborne elements exist.

Each coat shall be in proper state of cure or dryness before the application of succeeding coat. Material shall be considered dry for recoating when an additional coat can be applied without the development of any detrimental film irregularities, such as lifting or loss of adhesion of the under coat. Manufacturer instruction shall be followed for inter coat interval. Brush application of paint shall be in accordance with the following:

- a. Brushes shall be of a style and quality that will enable proper application of paint.
- b. Round or oval brushes are most suitable for rivets, bolts, irregular surface, and rough or pitted steel. Wide flat brushes are suitable for large flat areas, but they shall not have width over five inches.
- c. Paint shall be applied into all corners.
- d. Any runs or sags shall be brushed out.
- e. There shall be a minimum of brush marks left in the applied paint.
- f. Surfaces not accessible to brushes shall be painted by spray, doublers, or sheepskin. Drying of coated surfaces No coat shall be applied until the preceding coat has dried. The material shall be considered dry for re-coating when another coat can be applied without the development of any film irregularities such as lifting or loss of adhesion of undercoats. Drying time of the applied coat should not exceed maximum specified for it as a first coat; if it exceeds the paint material has possibly deteriorated or maxing is faulty. No paint shall be force dried under conditions which will cause checking, wrinkling, blistering formation of pores, or detrimentally affect the conditions of the paint. No drier shall be added to a paint on the job unless specifically called for in the manufacturer's specification for the paint.
Paint shall be protected from rain, condensation, contamination, snow and freezing until dry to the fullest extent practicable.

If the old paint is blistered and flaked it will be necessary to completely remove the same . Such removal shall be paid for separately and the painting shall be treated as on new surface.

The enamel paint should consist of application of one priming coat of red oxide zinc chromate Paint followed by two coats of enamel paint .

V.13

IV.14 Removing and replacing damaged Heavy Duty RCC jali in compound

Providing precast cement concrete Jali 1:2:4 (1 cement: 2 coarse sand: 4 stone aggregate 6mm nominal size) reinforced with 1.6mm dia mild steel wire including centering & shuttering roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete excluding plastering of the jambs, sills and soffits. The rate should be inclusive of breaking of the existing damaged RCC Jali .

The jali shall be of cement concrete 1:2:4 (1 cement 2 coarse sand:4 stone aggregate 6 mm nominal size) reinforced with 1.6 mm thick mild steel wire, unless otherwise specified.

Fixing The jali shall be set in position true to plumb and level before the joints sills and soffits of the openings are plastered. It shall then be properly grouted with cement mortar 1:3 (1 cement :3 coarse sand) and rechecked for levels. Finally the jambs, sills and soffits shall be plastered embedding the jali uniformly on all sides.

Measurements The jali shall be measured for its gross superficial area. The length and breadth shall be measured correct to a cm. The thickness shall not be less than that specified.

Rate The rate shall be inclusive of materials and labour involved in all the operations described above except plastering of jambs, sills and soffits, which will be paid for under relevant items of plastering

IV.15 Expansion Joint Treatment:

- I. Removing all dust, dirt etc. from the expansion joint and cleaning the surface thoroughly.
- II. Preparation of the surface edge by necessary rendering with Polymer Mortar, if required.
- III. Insertion of Backing material like Polystyrene Back up rod or Board / Thermocol.
- IV. Application of two coats of Sealant Primer on the concrete surface of the joint to be treated.
- V. Filling the joint by Polysulphide Sealant Hind Sealant PS (Pour grade for horizontal joint & Gun grade for vertical joint) and tooling the same



ARTICLES OF AGREEMENT

(On non-judicial Stamp Paper of Rs. 500/- or as per latest Govt. Rules)

ARTICLES OF AGREEMENT made the _____ date of _____ between STATE BANK OF INDIA, having its office at Mumbai hereinafter called "the Client" of the One Part and

WHEREAS the STATE BANK OF INDIA is desirous of

_____ and has caused specifications describing the work to be done to be prepared by STATE BANK OF INDIA.

AND WHEREAS the said Drawings numbered _____ to _____ inclusive, the Specifications and the Schedule of Quantities have been signed by or on behalf of the parties hereto.

AND WHEREAS the Contractor has agreed to execute upon and subject to the Conditions set forth herein and to the Conditions set forth herein in the Special Conditions and in the Schedule of Quantities and Conditions of Contract (all of which are collectively hereinafter referred to as "the said conditions") the works shown upon the said Drawings and / or described in the said Specifications and included in the Schedule of Quantities at the respective rates therein set forth amounting to the sum 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 FOLLOWS:

- 1) In consideration 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 shown upon the said Drawings and described in the said Specifications and the priced Schedule of Quantities.
- 2) The Employer shall pay to 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 term "The Architects" in the said Conditions shall mean the **STATE BANK OF INDIA**, or in the event of their ceasing to be the Architects for the purpose of this Contract for whatever reason, such other person or persons as shall be nominated for that purpose by the Employer, not being a person to whom the Contractor shall object for reasons considered to be sufficient by the Employer, PROVIDED ALWAYS that no person or persons subsequently appointed to be Architects under this Contract shall be entitled to disregard or overrule any previous decisions or approval or direction given or expressed in writing by the outgoing Architects for the time being.
- 4) The said Conditions and Appendix thereto shall be read and construed as forming part of this Agreement, and the parties hereto shall respectively abide by submit themselves to the said

Conditions and perform the Agreements on their part respectively in the said Conditions contained.

- 5) The Plans, Agreements and 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 a contract to carry out the work in respect of the entire building complex to be paid for according to actual measured quantities at the rates contained in the Schedule of Quantities and Rates or as provided in the said Conditions.
- 7) The Contractor shall afford every reasonable facility for the carrying out of all works relating to civil works, installation of lifts, Telephone, electrical installations, fittings air-conditioning and other ancillary works in the manner laid down in the said Conditions, and shall make good any damages done to walls, floors, etc. after the completion of his work.
- 8) The STATE BANK OF INDIA reserves to itself the right of altering the drawings and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this Contract.
- 9) Time shall be considered as the essence of this Contract and the Contractor hereby agrees to commence the work soon after the Site is handed over to him or from 14th day after the date of issue of formal work order as provided for in the said Conditions whichever is later and to complete the entire work within **120 days** subject to nevertheless the provisions for extension of time.
- 10) All payments by the SBI under this Contract will be made only at Mumbai.
- 11) All disputes arising out of or in any way connected with this Agreement shall be deemed to have arisen at Mumbai and only the Courts in Mumbai shall have jurisdiction to determine the same.
- 12) That the several parts of this Contract have been read by the Contractor and fully understood by the Contractor

IN WITNESS WHEREOF THE EMPLOYER and the Contractor have set their respective hands to these presents and two duplicates hereof the day and year first hereinabove written.

SIGNATURE CLAUSE

SIGNED AND DELIVERED by the

_____ By the
(Employer)

hand of Shri _____

(Name and Designation)

(Signature of Employer)

In the presence of:

1) Shri / Smt. _____

(Signature of Witness)

Address _____

(Witness)

SIGNED AND DELIVERED by the

_____ by the
(Contractor)

(Signature of Contractors)

in the presence of :

Shri / Smt. _____

(Signature of Witness)

Address _____

(Witness)

SAFETY CODE

1. First aid appliances including adequate supply of sterilized dressing and cotton wool shall be kept in a readily accessible place.
2. An injured person shall be taken to a public hospital without loss of time, in cases when the injury necessitates hospitalization.
3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from the ground.
4. No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm. (clear) and the distance between two adjacent running shall not be more than 30 cm. When a ladder is used an extra mazdoor shall be engaged for holding ladder.
5. The excavated material shall not be placed within 1.5 meters of the edge of the trench half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.
6. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.
7. No floor, roof or other part of the structure shall be so overloaded with debris or material as to render it unsafe.
8. Workers employed on mixing and handling material such as asphalt, cement, mortar, concrete and lime shall be provided with protective footwear and rubber hand gloves.
9. Those engaged in welding works shall be provided with welders' protective eye shield and gloves.
10. (i) No paint containing lead or lead products shall be used except in the form of paste readymade paint.
(ii) Suitable facemasks should be supplied for use by the workers when the paint applied in the form of spray or surface having lead paint dry rubbed and scrapped.
11. Overalls shall be supplied by the contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during cessation of work.
12. Hoisting machines and tackle used in the works including their attachments anchor and supports shall be in perfect condition.
13. The ropes used in hoisting or lowering material or as a means of suspension shall be durable quality and adequate strength and free from defects.

(F) Price break up (Annexure IV)

Price Break up as per tender document

(A) Contact Information

E-Procurement Technologies Ltd.	State Bank of India
<p>B-704, Wall Street - II, Opp. Orient Club, Nr. Gujarat College, Ahmedabad - 380 006. Gujarat State, India</p> <p>Tel.: +91 79 61200 579 580 567 569 566</p> <p>Mr. Nisarg Thakkar E-mail : nisarg.thakkar@auctiontiger.net Contact No : 99044 06300</p>	<p>The Assistant General Manager (P&E), State Bank of India, 3rd Floor, 'G' Block, Synergy Building, Bandra Kurla Complex, Bandra (E), Mumbai 400 051</p> <p>Officer Name : Rahul Parvate Department : Chief Manager (P & E) Contact No : 9717462906 E-mail : rahul.parvate@sbi.co.in</p>

INDEX
PROFORMAS

TABLE NO.	DESCRIPTION	PAGE NO.
1.	Proforma for Hindrance to Work.	
2.	Proforma for Running A/c. Bill.	
3.	Account of Secured Advance if Admissible on Materials Held at Site by the Contractors	
4.	Memorandum for Payment.	



TABLE-I

PROFORMA FOR HINDRANCE TO WORK

Name of Work : Date of Start of work :
Name of Contractor : Period of Completion :
Agreement No. : Dt. of Completion of work :

S.No.	Nature of Hindrance	Date of Occurrence of Hindrance	Date of which Hindrance was removed	Period of which Hindrance existed	Signature of Site Engineer	Signature of Bank / Architects Representative
1	2	3	4	5	6	7



PROFORMA FOR RUNNING A/C BILL

- i. Name of Contractor / Agency :
- ii. Name of Work :
- iii. Sl.No. of this Bill :
- iv. No. & Date of previous Bill :
- v. Reference to Agreement No. :
- vi. Date of Written order to commence :
- vii. Date of Completion as per Agreement :

S.No.	Item Description	Unit	Rate (Rs.)	As per Tender	
				Quantity	Amount (Rs.)
1	2	3	4	5	

Upto Previous R.A. Bill		Up Date (Gross		Present Bill		Remarks
Quantity	Amount (Rs.)	Quantity	Amount (Rs.)	Quantity	Amount (Rs.)	
6		7		8		9

- Note: 1. If part rate is allowed for any items, it should be indicated with reasons for allowing such a rate.
2. If ad-hoc payment is made, it should be mentioned specifically.

Net Value since previous bill

CERTIFICATE

The measurements on the basis of which the above entries for the Running Bill No. ----- were made have been taken jointly on ----- and are recorded at pages ----- to ----- of measurement book No. -----.

Signature and
date of Contractor

Signature and
date of Architects
Representative (Seal)

Signature and
date of Site Engineer

The work recorded in the above-mentioned measurements has been done at the site satisfactorily as per tender drawings, conditions and specifications.

Architect

Signature and
date of Site Engineer

**ACCOUNT OF SECURED ADVANCE, IF ADMISSIBLE ON
MATERIALS HELD AT SITE BY THE CONTRACTOR**

S.No.	Item	Quantity	Unit	Amount	Remarks
1	2	3	4	5	6

Total value of materials at Site.

Secured Advance @ ----- of above value - B

CERTIFIED:

- (i) That the materials mentioned above have actually been brought by the Contractor to the site of the work and on advance on any quantity of any of this item is outstanding on their security.
- (ii) That the materials (are of imperishable nature) and are all required by the Contractor for use in the work in connection with the items for which rates of finished work have been agreed upon.

Dated Signature of
Site Engineer
Preparing the bill
Rank -----

Date signature of
Banks Architects-----
(Name of the Architects)

Dated Signature of
the Contractor

MEMORANDUM FOR PAYMENT

R/A BILL NO.

1.	Total value of work done since previous bill (A)	Rs. -----
2.	Total amount of secured advance due since Previous Bill (B)	Rs. -----
3.	Total amount due since Previous Bill (C) (A+B)	Rs. -----
4.	PVA on account of declaration in price of Steel, Cement and other materials and labour as detailed in separate statements enclosed.	Rs. -----
5.	Total amount due to the Contractor	Rs. -----

OBJECTIONS:

i)	Secured Advance paid in the previous R/A	Rs. -----
ii)	Retention money on value of works as per accepted tenders upto date amount Rs.	Rs. -----
	Less already recovered	Rs. -----
	Balance to be recovered	Rs. -----
iii)	Mobilization Advance, if any	
(a)	Outstanding amount (principal + interest) as on date	Rs. -----
(b)	To be recovered in this bill	Rs. -----
iii.	Any other Departmental materials cost to be recovered as per contract, if any	Rs. -----

iv. Any other Departmental service charges to be recovered if any, as per contract (water, power etc.) enclose statement. Rs. -----

Total Deduction as per contract (F) Rs. -----

Adjustments, if any ----- Rs. -----
 - Amount less received by Contractor in ----- R/A Bill (as per statement of Contractor)

P.V.A. Rs. -----

Total amount payable as per contract (E+F+G) Rs. -----

(Rupees ----- in words)

The bill amount to Rs. ----- (both figures and words) has been scrutinized by us after due checking of the measurements of work as required and is recommended for payment.

Date: -----

 Signature of Architect
 with Seal

The bill amount to Rs. ----- certified by Consultants has been scrutinized by me after due test checking of measurements of works as required and is recommended for payment for an amount of Rs.....

Date : -----

Signature of Owners
 Engineer

STATUTORY DEDUCTION:

i) Total Amount due (E) Rs. -----

ii) Less I.T. Payable Rs. -----

iii) Less S.T. Payable Rs. -----

Net Payable Rs. -----

This figures given in the Memorandum for payable has been verified and bill passed for payment ----- (in words and figures)

Date: -----

 Signature of the AGM (P&E).

LIST OF MATERIALS OF APPROVED BRAND AND THEIR MANUFACTURERS

SL.	Item	Make
1	Cement (53 grade)	Ultratech / Lafarge / ACC / Ambuja
2	Polymer (Acrylic base)	Ready Made Polymer Bag etc. of ultratech BASF/ sunanda / fosroc/ aisam
3	Micro Concrete	Sunanda, Fosroc., Parma, BASF, Krishna Con Chem.
4	Steel	TMT steel any ISI mark.
5	Rust Convertor	Krishna Con chem., Parma, BASF
6	Ready Made Plaster	Ready Made plaster OD BASF / Ultratech
7	Waterproofing Compound	Scott No1, Sunanda, Parma, BASF
8	White cement	Birla
9	Silicon Sealent	GE
10	C.I. Pipes fittings	NICCO.
11	S.W. Pipes	Orind, Burn & Co.
12	P.V.C Pipes (Pressure Capacity 4kg/Sq.cm.)	Prince / Astral / Supreme
13	CPVC Pipe (SDR-11 Grade)	Prince / Astral / Supreme
13	External and Internal Paint	Asian / Berger / Nerolac / ICI
15	G.I Pipe & Fittings ("C" class, heavy)	Zenith / Jindal / Tatai
16	Plaster Admixture (Polymeric)	Krishna Con chem. Parma, BASF
17	Glazed Tiles	Johnson / Kajaria / Nitco / Somany

- NB.
- 1) The contractor should obtain prior approval from Employer / Consultants before placing order for any specific materials. Employer may / delete any of the makes or brands out of the above list.
 - 2). All materials should conform to relevant standards and codes of BIS.
 - 3) Materials with I.S.I. mark shall be used duly approved by the STATE BANK OF INDIA Engineer / Architect.

Note: - If any material is found to be not up to the mark, the contractor will have to produce original bills/certificate from the manufacturer or his authorized Distributor for authenticity and genuineness of the material for consideration and as per make approved by the STATE BANK OF INDIA. The same will not be considered for payment.

MODE OF MEASUREMENT

1. Unless otherwise stated, all pipes shall be measured net, length as laid and measured overall fittings, such as bends, junctions, etc., and given in running meters. The length shall be taken along the center line of the pipes and fittings.
2. Length of fittings viz, taps, valves, traps etc., which are paid under appropriate items shall not be re-measured under linear measurements as enumerated above.
3. Soil waste and vent pipes shall be measured along the center line of the stack including the connecting bends/tees to W.C. Pan, Nahani trap, etc. and shall be paid as enumerated above.
4. W.C. Pans, Lavatory basins, Sinks, Drain boards, Urinals, Mirrors, Glass shelf Toilet paper Holder, shall be measured by number and shall include all accessories as enumerated in detail specification under each item.
5. Unless otherwise specified, all types of taps, valves, etc., shall be measured by number and paid separately.
6. Manholes, inspection Chambers, Gully traps, etc. shall be constructed according to detail specification and measured by number and paid separately. The depth of Manhole shall mean the vertical distance from the top of the Manhole cover to the outgoing invert of the main drain channel.
7. Water meter shall include Y strainer and other appurtenances required by the local bodies and shall include brick masonry chamber, etc., as per detailed specifications and item shall be measured by number and paid for accordingly or as per schedule of quantity.

PREAMBLE TO SCHEDULE OF QUANTITIES

Note: While quoting rates for each item of work, the contractor shall include for the following irrespective whether it has been mentioned or not in the description of the item without any extra claim / payment.

1. All unexposed surfaces of timber (any variety) used shall be treated with necessary coats of wood preservative.
2. All exposed surfaces of timber (any variety) shall also have necessary coat of wood primer / putty and paint / polish as per description in the item.
3. Before making bulk quantities, the contractor shall make each of the item as sample and get it approved in writing from the consultant's minor modification if and as suggested by the consultant the same shall have to be incorporated without any extra cost.
4. All exposed edges of ply board shall be fixed with cedar / teak wood lipping.
5. All fabrics / leatherite to be used shall cost Rs. 300/ - per meter unless otherwise specified in the item.
Difference in cost for approved sample shall be adjusted accordingly.
6. For furniture item where required whether mentioned or not shall be include providing fixing of Brass / Power coated handles /knobs multipurpose locks, mini tower bolts, ball catchers, hinges, screws and sliding rails etc.
7. Back of all storage, cabinets, and consoles shall be in 6mm commercial ply only.
8. Thickness of laminates to be used shall be 1 mm except where specified.
9. Ant termite treatment is to provide for all wood / board /ply used in the storage.

BILL OF QUANTITIES**EXTERNAL PAINTING & OTHER REPAIRS OF STAFF QUARTERS AT MATRUCHAYA,
EVERSHINE NAGAR, MUMBAI**

Nos	Description	Units	Qty	Rate ₹	Amount ₹
	Please Note:				
	Contractor has to make arrangements at his own cost to tie a safety net around the work so that loose plaster/ concrete does not cause damage to the property or any human being.				
	Contractor at his own cost install props of suitable size as directed by Structural Consultant/ Architect and shall only be removed till he receives wrtten instructions to remove it.				
	All the windows are to be covered with tin sheets/ plyboards so that no damage is done to them and carefully removing them complete.				
	Double steel scaffolding has to be erected without puncturing the walls, and covering it with jute cloth, at no extra cost to the Bank.				

1	REMOVING/ REPLASTERING LOOSE PLASTER (PATCH PLASTER) As per				
	Removing existing loose cement plaster of any thickness and carting away the debris to any lift and lead as per direction of Municipal Authorities at no extra cost to the Bank , & providing 25mm thick external plastering and making smooth so as to match with the existing plaster surface. Plaster to be done in three or more coats, under layer 12mm thick with C.M. 1:4 finished with a top layer 8mm thick in C.M. 1:5 including dash coat and including adding admixture of approved water proofing compound @ 2% by weight of cement used and polyurathene fibre 1kg/bag of cement or as per manufacturer's specifications, sieving of river sand which should be free of silt & other impurities to required fineness, finishing, curing, etc. and fixing chicken wire mesh 25mm wide aperture made up of 0.9 mm galvanised	Sq.Mt	2000		
	wire of at the junction of R.C.C. members and brick work of approved quality including fixing mesh in position by necessary nailing in concrete or/ B.B. masonry and or tying by binding wire & complete as per specifications, drawings and as per the direction complete.				

2	STRUCTURAL POLYMER REPAIR				
	a) Removing loose concrete around the RCC member at specified locations upto concrete core with chisel and hammer, all debris, spalls, etc. to be carted outside the building compound upto the municipal dump with all lead and lift complete as per the direction of Engineer In charge				
	b) Rust Remover Brushing with wire brush and removing all rust scales from rebars & washing with water as required and providing and applying Rust Remover of approved make on existing exposed reinforcement bars as specified.				
	c) R.I. Coat Providing and applying Rust Inhibition Coat / system to exposed rebars & also new rebars complete.				
	d) Bond coat Providing and applying raw Polymer Bond Coat / system to all exposed concrete surface and rebars prior to polymer treatment complete.				
	e) P.M.M. Providing and applying Polymer modified mortar in ratio 1:5:15 (1 part by weight of polymer : 5 parts by weight of cement : 15 parts by weight of Quartz sand) upto 25 mm thickness all complete.	Sq.Mt.	45		
3	WATERPROOFING OVER CHAJJA/SLOPPING ROOF providing & laying waterproofing treatment of sloping roof / chajja / cornice room top of 50 mm average thickness consisting of 12 mm thick layer in Cement Mortar 1:4 with water proofing compound at the rate of 1Kg per bag of cement as base, constructing and laying brick bat coba in cement mortar 1:5 with waterproofing compound at the rate of 1 Kg per bag of cement and having average thickness of 40 mm and finishing 20mm thick cement plaster layer in cement mortar	Sq.Mt.	550		

	1:4, waterproofing compound at the rate of 1 Kg per bag, giving proper slops, curing, finishing etc. including watta, Bell head or Champhered portion at the junction of parapet and work upto a height of 300mm or as directed and covering the whole treatment with ten years guarantee on requisite stamp paper etc.				
4	Aluminum Sliding Windows : Prov. & fixing 4-track Alluminium Anodized windows. The frame should be 50mm x 37.50mm wide section with tracks on all the slides and drain tray system for the bottom frame. The shutters should be of suitable 50mm x 25mm section for top and bottom member and 40.62mm x 25mm for vertical with 6mm. thk. Modiguard/ Saint Gobain make clear float glass and bearings SK co. or equivalent imported co. shall be used. the track will be fixed on 50mm x 25mm size alluminium pipe frame. (Heavy Duty 50mm thk. frame (14 gauge) of Jindal / Indal / Hindalco co. make) The Anodising should be min. 16-18 Micron Layer coating evenly spread on the alluminium sections. Rate shall be inclusive of necessary fittings, locks, handles, best quality rollers, necessary hardware items etc. complete	Sq.Mt.	400		
5	Aluminum Louvered Windows : Prov. & making Alluminium Anodised frame of above specifications with 6mm. Thk. Thum Glass panels of app size Louvered Windows Rate should be inclusive of seperate Alluminium Anodized panel panel with Alluminium Powder coated Net fixed with High Power magnetic catch. The Anodising should be min. 16-18 Micron Layer coating evenly spread on the alluminium sections.	Sq.Mt.	215		
6	Green Marble Window Frames : Prov. Making 9" Box type Granite windows frame in steps with round molding at out side & polish from other side. (Basic cost of Green Marble Rs.85/- per Sft.)	RMT	2250		

7	Prov.& fix M.S.Grills to windows : Prov. & fixing Box type M.S. Grills of 12mm. Thk. Square rods & 25mm. X 5mm. Thk. M.S. flats.	Sq.Mt.	1200		
8	ELASTOMERIC EXTERNAL PAINT INCLUDING SCAFFOLDING (Apex Ultima Protek/ Berger Weather Coat Long Life or equivalent)				
	Scrapping the existing paint and finishes using stiff wire /fibre brush, then removing all loose and powdery residue,any fungus and algae thorough brushing followed by water jetting with pressure pump, then making surface imperfections such as holes, dents, small visible cracks by filling using mixture and then surface preparation for painting. Providing and applying 100% heat insulating & thermal resistant, high quality, waterproof, weathershield external paint of Asian Apex Ultima Protek or equivalent approved make, including crack filling with cement mortar mixed with waterproof crack filling sealant/ chemical of Dr.Fixit/ Fosroc/ Sikka/ Sunanda or equivalent make and applying a waterproof priming coat (Duralife/Seal Prime or equivalent) on the prepared surface and applying three or more subsequent coats of paint of approved shade, colour, texture & design.	Sq.Mt.	5500		
	The rate shall include scaffolding Etc. at all levels, applying three coats at an interval of 4-6 hours between each coat etc all complete as per the satisfaction of the consultant / engineer incharge. The rate include water, curing, strong scaffolding, staging and fixing jute Kantan (Tarat) screen to scaffolding, cleaning, complete. The rate shall be inclusive of 10 years guarantee to be given by the contractor from the paint company.				

9	SYNTHETIC ENAMEL PAINT (Oil Paint) INCLUDING SCAFFOLDING				
	Removing the existing paint & Providing and applying two coats of synthetic enamel paint of approved shade and colour firstly removing old paint with scratching using stiff wire / fibre brush sand paper, fine steel wool then removing all loose and powdery residue, any fungus and algae thorough brushing, cleaning, making surface imperfections such as holes, then applying one coat of approved make primer, then providing and applying two coats of approved synthetic enamel paint of approved colour, shade complete. The rate should include provision of scaffolding.	Sq.Mt.	2600		
				TOTAL	
					PLUS GST