



TENDER PART-A

(TECHNICAL BID)

STATE BANK OF INDIA

**ONLINE TENDER FOR CIVIL WORK OF COLLECTORATE
BRANCH AT INDORE**

**REGIONAL BUSINESS OFFICE-2
STATE BANK OF INDIA,**

State Bank Building, 5 Yashwant Niwas Road, Indore,
Madhya Pradesh, 452001.

Email: rm.rbo2indore@sbi.co.in

TENDER SUBMITTED BY:

NAME:

ADDRESS:

GSTIN NO:

DATE:

ARCHITECTS

Minu & Sharat Associates
E8/19, Doorsanchar Nagar, Gulmohar Colony,
Bawadia Kalan, Bhopal-462039.
Ph: 09755945577, 0755- 4273906
Email: minusharat@gmail.com

NOTICE INVITING TENDERS

STATE BANK OF INDIA, RBO- INDORE through its Architect **M/s. Minu & Sharat Associates, Bhopal** invites "online item rate E-tender" from the SBI Empaneled contractors under appropriate category for the captioned work.

The SBI Empaneled contractors who receive NIT from Architect are only entitled to quote for this tender.

The details of tender are as under:-

Sr. No.	Description	
1.	Name of work	Civil work of proposed COLLECTORATE BRANCH, (INDORE Region).
2.	Nature of Work	Civil work.
3.	Estimated Cost	Rs. 8,86,462.50
4.	Time allowed for completion	45 Days from the date of Commencement
5.	Earnest Money Deposit	9,000/- (Rupees Nine Thousand only) by means of Demand Draft / Banker's cheque (Valid for a period of 90 Days from the last date of submission of the tender) from any Nationalized Bank drawn in favour of R.M., State Bank of India, INDORE
6.	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 favour of R.M., State Bank of India, INDORE within a period of 15 days of acceptance of tender.
7.	Date of issue of tender documents form Bank's website	From 01.08.2026 to 14.08.2026 https://www.etender.sbi/
8.	Last date & time for submission of Online Technical and Price bid, EMD and cost of tender document	Up to 3:00 P.M. On 14.08.2026 Note: It is sole responsibility of the bidder to ensure submission of their EMD and cost of tender document cum processing by stipulated date and time at specified address failing which they will not be allowed to participate in e-tendering
9.	Date & Time of opening of e-tenders	3:30 P.M. On 14.08.2026
10.	Address at which along with EMD & Cost of tender document proof has to be submitted.	The R.M., State Bank of India, RBO INDORE. (M.P.) However Bids would be opened even in the absence of any or all the bidder's representatives.
11.	Place of opening tenders	The R.M., State Bank of India, RBO INDORE. (M.P.) However Bids would be opened even in the absence of any or all the bidder's representatives.
12.	Liquidated Damages	0.50% of contract amount per weeks subject to max. 5% of contract value or final bill value.
13.	Defect's liability period	12 Months from the date of Virtual Completion
14.	Validity of offer	90 days from the date of opening of Price-bid
15.	Value of Interim Certificate	Rs. 5.0 Lakhs. No advance on materials / plant / machinery or mobilization advance shall be paid under any circumstances

16.	Submission of Technical Bid (Hard Copy)	Contractors shall download the entire Technical Bid to get acquainted with terms and conditions and without fail in the e-tendering portal after putting the signature and seal. Failing to upload as stated above, the tender will be rejected. However, L1 Tenderer should submit the whole technical bid spirally bound securely and in serial order containing all pages duly signed with company seal and date to this office within 7 days of receipt of confirmation. Failure to submit the hardcopy of Technical Bid may render the bidder disqualified.
17.	Agency for arranging e-tender/online bidding	M/s. Antares Systems Limited, 24, Sudha Complex, 3rd Stage, 4th Block, Bangalore – 560079, Karnataka. Ph.: 080-49352000 / 40482000 e-Mail: kushal.b@antaressystems.com
18.	Corrigendum	The contractors have to visit the Bank's web site regularly for any corrigendum till the last date and time of opening of tender.

19. Tenders can be downloaded from the bank's website www.sbi.co.in (link <Procurement News>). It shall be responsibility of the contractor to arrange and ensure that all pages of technical and financial bid are properly bound separately. Tenders in loose pages may be disqualified.

20. The contractor shall sign and stamp each page of the tender document thereby ensuring the number and sequence of all pages.

21. 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.

22. The SBI 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.

23. Tenders received without EMD and Cost of Tender Documents 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.

25. SBI has the right to accept / reject any / all tenders without assigning any reasons and no correspondence shall be entertained in this regard.

The R.M., State Bank of India, RBO INDORE. (M.P.)

F O R M O F T E N D E R

To,

The R.M.,

STATE BANK OF INDIA BANK,

RBO INDORE.

NAME OF WORK: Civil work for SBI COLLECTORATE BRANCH, INDORE Region.

Sir,

3.1 Having visited the site and examined the drawings, conditions of contract, special conditions of contract, General specifications and detailed specifications, schedules and bill of quantities for the construction of the above named works, we offer to construct, complete and maintain the whole of the said works in conformity with the said drawings, conditions of contract, specifications, schedules and bill of quantities for the sum stated in bill of quantities of this Tender Document or such other sum as may be ascertained in accordance with the said conditions of contract.

3.2 We undertake to complete and deliver the whole of the works comprised in the contract within the time stated in the appendix hereto.

3.3 We have independently considered the amount of liquidated damages shown in the Appendix hereto and agree that it represents a fair estimate of the loss likely to be suffered, by you in the event of the works not being completed in time.

3.4 We agree to abide by this tender for the period of 90 days from opening of envelope 3 or extension thereof as required by the employer from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

3.5 We confirm that the period and rates as referred in the agreement or general conditions of contract are given or summarized in the appendix hereto, to which we give our consent and agree to abide by the same.

3.6 If this tender is accepted, we undertake to enter into and execute at our cost, when called upon by the employer to do so, a contract agreement in the prescribed form. Unless and until a formal agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding contract between us.

3.7 We understand that if our tender is accepted, we are to be jointly and severally responsible for the due performance of the contract.

3.8 We understand that you are not bound to accept the Lowest or any tender you may receive and may reject all or any tender, accept or entrust the entire work to the contractor or divide the work to more than one contractor without assigning any reason or giving any explanation whatsoever.

Dated this _____ day of _____ 2026 Signature
_____ in the capacity of _____ duly authorized
to sign tenders for and on behalf of _____

(IN BLOCK CAPITALS)

Witness :

Signature/ Address:

APPENDIX TO FORM OF TENDER**GENERAL CONDITIONS OF CONTRACT CLAUSE NO.**

Defects Liability period	12 Months (Clause No. 5.37)
Date of commencement	3 days from the date of acceptance letter is issued to contractor or day on which the contractor is instructed to take possession of the site whichever is later. (Clause No. 5.14)
Time of completion	45 Days from the date of commencement. (Clause No. 5.14)
Period of Final Measurement	One months from the date of virtual completion (Clause No. 5.31)
Liquidated damages	0.5% of the tendered amount shown in the tender per week subject to the ceiling of 5% of the accepted contracted sum. (Clause No. 5.15)
Minimum value of work for interim certificate	Rs. 5.0 Lakhs. No advance on materials / plant / machinery or mobilization advance shall be paid under any circumstances (Clause No. 5.29)
Initial security deposit	2% of the accepted tender value including earnest money (Clause No. 5.12)
Retention percentage	10% of the accepted tender amount subject to maximum as per clause (Clause No. 5.12)
Refund of total security comprising of EMD, ISD and Retention	The initial security deposit comprising of EMD, shall be refunded to the ISD and retention contractor within 14 days of the issue of certificate of Virtual completion. The retention amount will be refunded to the contractor 14 days after the end of the defect liability period. (Clause No. 5.12)
Period of honoring Certificate	15 days from date of receipt of certificate from the Architect. (Clause No. 5.29)
GST	Contractor to Quote rates excluding GST, the same shall be paid separately by the Bank as applicable

SAMPLE BUISNESS RULE DOCUMENT

ONLINE E-TENDERING FOR PROPOSED CIVIL WORK OF COLLECTORATE BRANCH,
INDORE Region (M.P.)

(A) Business rules for E-tendering:

1. Only empaneled contractors with SBI under appropriate category who are invited by the project Architect/SBI shall only be eligible to participate.
2. SBI will engage the services of and E-tendering service provider who will provide necessary training and assistance before commencement of online bidding on Internet.
3. In case of e-tendering, SBI (RM, RBO INDORE) will inform the vendor in writing, the details of service provider to enable them to contact and get trained.
4. Business rules like event date, closing and opening time etc. also will be communicated through service provider for compliance.
5. Contractors have to send by email, the compliance form in the prescribed format (provided by service provider), before start of E-tendering. Without this the vendor will not be eligible to participate in the event.
6. The Contractors will be required to submit the hard copy of EMD and proof of tender application copies in sealed Envelope to the office of State Bank of India at the address mentioned hereinbefore by the stipulated date and time. Contractors not submitting any one or more documents shall not be eligible to participate in the on line price bidding.
7. E-tendering will be conducted on schedule date & time.
8. **The e-tendering 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 E-tendering:

SBI shall finalize the Tender through e-tendering mode for which **M/s Antares Systems Limited, Bangalore**, has been engaged by SBI an authorized service provider. Please go through the guidelines given below and submit your acceptance to the same along with your Commercial Bid.

1. E-tendering shall be conducted by SBI through **M/s Antares Systems Limited, Bangalore** on pre-specified date. While the Contractors shall be quoting from their own offices/ place of their choice, Internet connectivity and other paraphernalia requirements shall have to be ensured by Contractors 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 E-tendering successfully. Failure of power at the premises of Contractors during the E-tendering cannot be the cause for not

participating in the E-tendering. On account of this the time for the E-tendering cannot be extended and SBI is not responsible for such eventualities.

2. **M/s Antares Systems Limited, Bangalore** shall arrange to train your nominated person(s), without any cost to you. They shall also explain you all the Rules related to the E-tendering. 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 E-tendering.
4. 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.
5. Procedure of E-tendering:

Online E-tendering :

- I. The hard copy of the Technical as well as Price Bid is available on the Bank's website during the period specified in the NIT.
- II. Online e-tendering is open to the empaneled bidders who receive NIT from the SBI and qualified for participating in the price bidding as provisions mentioned hereinabove through SBI approved Service Provider.
- III. The Price-Bid shall be made available online by the Service Provider wherein the contractors will be required to fill-in their Item-wise rates for each item.
- IV. The Contractors are advised not to wait till the last minute to submit their online item-wise quote in the price bid to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.
- V. It is mandatory to all the bidders participating in the price bid to quote their rates for each and every item.
- VI. In case, contractor fails to quote their rates for any one or more tender items, their tender shall be treated as **"Incomplete Tender"** and shall be liable for rejection.
6. LOG IN NAME & PASSWORD: Each Bidder is assigned a Unique User Name & Password by **M/s Antares Systems Limited, Bangalore**. The Bidders are requested to change the Password after the receipt of initial Password from **M/s Antares Systems Limited, Bangalore**. All bids made from the Login ID given to the bidder will be deemed to have been made by the bidder.
7. BIDS PLACED BY BIDDER: Bids will be taken as an offer to execute the work as specified. Bids once made, cannot be cancelled / withdrawn and the Bidder shall be bound to execute the work at the quoted bid price. In case the L-1 Bidder backs out or fail to complete the work as per the rates quoted, SBI shall at liberty to take action as deemed necessary including depaneling such contractors and forfeiting their EMD.
8. At the end of the E-tendering, SBI will decide upon the winner. SBI decision on award of Contract shall be final and binding on all the Bidder
9. SBI shall be at liberty to cancel the E-tendering process / tender at any time, before ordering, without assigning any reason.

10. SBI shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.
 11. Other terms and conditions shall be as per your techno-commercial offers and other correspondences till date.
 12. 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 decision on award of Contract shall be final and binding on all the Bidders.
 - . SBI reserves their rights to extend, reschedule or cancel any E-tendering within its sole discretion.
 - . SBI or its authorized service provider **M/s Antares Systems Limited, Bangalore** shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause.
 - . SBI or its authorized service provider **M/s Antares Systems Limited, Bangalore** is not responsible for any damages, including damages that result from, but are not limited to negligence.
 - . SBI or its authorized service **M/s Antares Systems Limited, Bangalore** 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 Antares Systems Limited, Bangalore.
 - **All the bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the online event.**

PROCESS COMPLIANCE STATEMENT (ANNEXURE II)

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

To,
M/s. Antares Systems Limited,
24, Sudha Complex,
3rd Stage, 4thBlock, Bangalore – 560079,
Karnataka. Ph.: 080-49352000 / 40482000
e-Mail: kushal.b@antaressystems.com

**AGREEMENT TO THE PROCESS RELATED TERMS AND CONDITIONS FOR THE ON
LINE E-TENDERING FOR PROPOSED CIVIL WORK OF COLLECTORATE BRANCH,
RBO INDORE.**

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 E-tendering tool and have understood the functionality of the same thoroughly.
- 4) We confirm that SBI and **M/s Antares Systems Limited, Bangalore** shall not be liable & responsible in any manner whatsoever for my/our failure to access & bid on the e-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 confirm that we have a valid digital signature certificate issued by a valid Certifying Authority.
- 6) 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 -----

SECTION - II
INSTRUCTIONS FOR TENDERER

2.0 The details of work to be carried out and its scope are given in the specifications and bill of Quantities of these documents which also indicate a brief description of the Project where work is to be executed.

The Tenderers are advised to study the same carefully before tendering and they shall be deemed to have fully acquainted themselves with the same.

2.1 The Tenderers, in their own interest, are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders, in respect of the site conditions including but not restricting to the following which may influence or effect the work or cost thereof under the contract.

a) Site conditions including access to the site, existing and required roads and other means of transport/communication for use by him in connection with the work.

b) Requirement and availability of land and other facilities for his enabling works, stores and workshops etc.

c) Ground condition including those bearing upon transportation, disposal, handling and storage or materials required for the work or obtained therefrom;

d) Source and extent of availability of suitable materials including water etc. and labour (skilled and unskilled) required for work and laws and Regulations governing their use and employment;

e) The type of equipment and facilities needed preliminary for and in the performance of the work and for successful completion of work.

f) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or effect the work or the cost thereof under this contract.

2.2 The tenderers should note that the information, if any, in regard to the site and local conditions, as contained in these tender documents has been given merely to assist the tenderers and is not warranted to be complete.

2.3 The tenderers should note and bear in mind that the BANK shall bear no responsibility for the lack of acquaintance of the site and other conditions or any information relating thereto, on their part. The consequences of the lack of any knowledge as aforesaid on the part of the tenderers shall be at their risk and cost and no charges or claims whatsoever consequent upon the lack of any information, knowledge or understanding shall be entertained or payable by the BANK.

2.4 Immediately on receipt of the Tender Documents from the BANK but at least seven days prior to the date fixed for opening of Envelope No. 1 & 2 of Tender, the Tenderer may submit in writing any tender enquiry on matters where clarifications or additional information is desired.

If considered appropriate, the BANK reserves the right to issue addendum(s) or amendment(s) to any condition/specifications/schedules to all Tenderers before the date of submission. Tenders submitted by the tenderers shall be deemed to cover the effect of such addendum(s)/amendment(s) issued and such addendum(s)/amendment(s) duly signed by the tenderers shall be submitted along with the tenders.

2.5 The tender should be submitted in the prescribed form and the same should be signed as laid down here under;

a) If the tender is submitted by an individual it shall be signed by the proprietor above his full name and full name of his firm with his current business address.

b) If the tender is submitted by a proprietary firm, it shall be signed by the proprietor above his full name and full name of his firm with its name and current business address.

c) If the tender is submitted by a firm in partnership, it shall be signed for and on behalf of the firm by all the partners of the firm above, their full names and current business address, or by a partner holding the power of attorney for the firm by signing the tender in which case a certified copy of the Power of Attorney shall accompany the tender. A certified copy of the partnership deed and current business address of all the partners of the firm shall also accompany the tender.

d) If the tender is submitted by a Limited company, or a Limited corporation, it shall be signed by a duly authorized person holding the power of attorney for signing the tender in which case a certified copy of the Power of Attorney shall accompany the tender. Such Limited company or Corporation may be required to furnish satisfactory evidence of its existence before the contract is awarded.

e) If the tender is submitted by a group of firms, the sponsoring firms shall submit complete information pertaining to each firm in the group and state along with the bid as to which of the firm shall have the responsibility for tendering and for completion of the contract document and furnish evidence admissible in law in respect of the authority assigned to such firm on behalf of the group of the firms for tendering and for completion of the contract of the contract document. The full information and satisfactory evidence pertaining to the participation of each members of the group of firm in the tender shall be furnished along with the tender.

f) All witnesses and sureties (if any) shall be persons of status and their full names, occupations and address shall be stated below their signatures. All signatures affixed on each page in the tender will be dated.

2.6 The tenderer shall furnish with his tender :

a) Construction schedule showing all activities of work in details and in the form of Bar Chart proposed to be completed within the stipulated period duly signed as token of acceptance.

b) Details of plant, equipment and Machinery immediately available with the tenderer for deployment on the work.

c) Detail of Technical and supervisory personnel already employed by tenderer which he proposes to utilize for this work and such other personnel which he proposes to employ further for this work.

d) Relevant information on the capacity, financial resources and experience about himself.

2.7 The earnest money deposit without any interest will be returned to the unsuccessful tenderers only after validity period/award of work.

2.8 The BANK or its duly authorized representative will open the tenders in the presence of tenderers who may be present at the time. If any of the tenderer or his agent is not present at the time of opening of tender, the BANK or its duly authorized representative will, on opening of tenders of the absentee tenderer, prepare a statement of the attested and unattested corrections in the tender under his signatures. Such a statement shall then be binding on the absentee tenderer.

2.9 Tenders, which should always be placed in sealed covers, with the name of the project written on the envelopes will be received by R.M. COLLECTORATE STATE BANK OF INDIA **upto 03:00 noon On 14/08/2026** and will be opened by him in his office after 03:30 PM.

2.10 The time allowed for the carrying out of the work will be **45 Days** from the date of written orders to commence the work.

2.11 The tenderers should quote for all the items of work as given in the bill of quantities. The rates shall be written in both the words and in figures. Tenderer shall also show cost of each item, total of each subhead and, the Grand total of the whole contract. Corrections, if any, shall be made by crossing out, initialing dating and rewriting.

2.12 While a contractor signs a tender in an Indian language the total amount tendered should also be written in the same language. In the case of illiterate contractors the rates and the amount tendered should be attested by a witness.

2.13 Issue of tender form will be stopped one days before the date fixed for the opening of tenders.

2.14 Earnest money amounting to (RS 9000/-.) in the form of BANK Draft drawn in favour of " RM, RBO - INDORE , a/c (*name of/Contractor's firm*) " must accompany each tender and each tender is to be in a sealed cover superscribed "Tender for Civil Works of COLLECTORATE BRANCH, RBO INDORE at STATE BANK OF INDIA" and addressed to the office of R.M., RBO INDORE.

2.15 The contractor whose tender is accepted will be required to furnish by way of security deposit 2% of the accepted tender amount (including earnest money) for the due fulfillment of his contract. The Security Deposit shall be collected as detailed in General conditions of contract clause no. 5.12.

2.16 The acceptance of a tender will rest with the STATE BANK OF INDIA, which does not bind itself to accept the lowest tender, and reserves to itself the authority to reject any or all of the tenders received without the assignment of any reasons. All tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

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

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

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

2.20 On acceptance of tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Employer/Architect shall be communicated to the Employer/Architect.

2.21 Special care should be taken to write in figures as well as in words and the amounts in figure only, in such a way that interpretation is not possible. The total amount should be written both in figures and words. In case of figures, the word 'Rs' should be written before, the figure of Rupees and words 'p' after the decimal figures, e.g. Rs 2.15 p and in case words, the word 'Rupees' should precede and the word paise should be written at the end, unless the rate is in whole rupees and followed by the words 'only', it should invariably be upto two decimal places. While quoting the rates in the bill of quantities, the word 'only' should be written closely following the amount and it should not be written in the next line.

2.22 (a) The BANK does not bind itself to accept the lowest tender but it may accept any tender and reserves to itself the right of accepting the whole or any part of a tender and the tenderer shall be bound to perform the same at the rate quoted.

(b) The BANK reserves the right to accept the tender in full or in parts and that the tenderer shall have no claim for revision of rates or other conditions if the tender is accepted in parts.

2.23 The contractor shall give a list of his relatives working with the BANK along with their designations and addresses.

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

2.25 The tender for works shall remain open for acceptance for a period of 90 days from the date of opening of Envelope No. 3 of the tenders. If any tenderer withdraws his tender before the said period, then the BANK shall be at liberty to forfeit Earnest Money paid along with the tender.

The Earnest Money Deposit of the tenderer whose tender is accepted shall be forfeited in full in case he does not remit the initial security deposits within the stipulated period or start the work by the stipulated date mentioned in the award letter.

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

2.27 It will be obligatory on the part of the tenderer to tender and sign the tender documents for all the component parts and that, after the work is awarded, he will have to enter in to an agreement, for each component with the competent authority in the BANK.

2.28 Sealed tenders are to be delivered in person to the officer nominated for the purpose or put in a sealed tender box kept in the office before the stipulated time.

2.29 The 'Notice Inviting Tender' and this 'Instructions for Tenderers' shall form part of the Tender Documents.

SIGNATURE OF THE COMPETENT AUTHORITY
STATE BANK OF INDIA

ARTICLES OF AGREEMENT

(On non-judicial Stamp Paper of Rs. 1000/- or as per latest Govt. Rules)

This agreement is made on _____ day of _____ 2026 between (STATE BANK OF INDIA RBO INDORE, _____ (hereinafter called "The Employer") of the one part and _____ (hereinafter called "the Contractor") of the other part.

WHEREAS the Employer is desirous of certain works should be executed viz. Civil Works for STATE BANK OF INDIA, COLLECTORATE BRANCH, RBO INDORE and has by letter of acceptance dated _____ accepted a tender by the contractor for the execution, completion, and maintenance of such works, now THIS AGREEMENT WITNESSES as follows :

4.1 In this agreement words and expressions shall have the same meaning as are respectively assigned to them in the said conditions of contract hereinafter referred to :

4.2 The following documents shall be deemed to form and to read construed as part of this agreement, viz.

- i) Original tender document.
- ii) Relevant correspondence all letters/correspondence forming part of contract and referred to in acceptance letter.
- iii) Acceptance letter.
- iv) Bill of quantities.
- v) The drawings.
- vi) Time and progress chart.
- vii) Other additional documents as required,
 - a)
 - b)
 - c)
- viii) Article of Agreement.

4.3 The aforesaid documents shall be taken as complementary and mutually explanatory of one another, but in the case of ambiguities of discrepancies the latest documents issued by the BANK shall prevail over on earlier documents.

* Give the Name, Destination and Address of the Contractor.

4.4 In consideration of the payment to be made by the employer to the contractor as hereinafter mentioned, the contractor hereby covenants with the employer to perform execute, complete and maintain the work in conformity in all respects with the provision of the contract.

4.5 The employer hereby covenants to pay the contractor in consideration of the execution, completion and maintenance of the works such sums as shall become payable hereunder at the time(s) and in the manner prescribed in the said conditions and price schedule of quantities/bill of quantities prescribed in the contract.

IN WITNESS whereof the parties hereto have caused their respective common seals to be hereunto affixed (or have hereunto set their respective hands and seals) the day, month and year first above written.

SIGNED AND SEALED AND DELIVERED BY THE

said _____

said _____

(Name _____)

(Name _____)

on behalf of the contractor

on behalf of the employer

In the presence of

In the presence of

Name: _____

Name: _____

Address: _____

Address: _____

- This form is included in the tender documents only for the information of the tenderers. Only the successful tenderer will be, in due course, required to complete the form.

- **INSTRUCTIONS TO THE TENDERERS**

- **1.0 Scope of work**

-
- RM, RBO, INDORE, invites e-tender's for Proposed Civil work of COLLECTORATE Branch, RBO INDORE .
-

- **Site and its location**

-
- The proposed work is to be carried out at COLLECTORATE BRANCH, ASHTA.
-

- **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**

-

- **Additional specifications**

-

- **Drawings**

-

- **Priced bid A**

-

- 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) Additional Specifications
- c) Technical specifications
- d) Drawings
- e) Special conditions of contract
- f) General conditions of contract
- g) Instructions to Tenderers
-

- 2.3 Complete set of tender documents including relative drawings can be downloaded from the website www.sbi.co.in
-

- 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 will be fully 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 **Rs. 9,000.00 (Rupees Nine 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 Nationalized Bank drawn **in favour of R.M., State Bank of India, RBO INDORE payable in Indore . NO TDR / STDR SHALL BE ACCEPTED AS EMD**
-
- 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 60 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 favour of R.M., State Bank of India, Indore within a period of 15 days of acceptance of tender.
-
- 6.0 **Security Deposit**
-
- 6.1 Total security deposit shall be 5% of contract value. Out of this 2% of contract value is 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 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 5% 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 **Additional Security Deposit**
- In case L-1 bidder quotes abnormally low rates (i.e. 7.50% or more, below estimated project cost), the bank may ask such bidder to deposit additional security deposit (ASD) equivalent to difference of estimated cost vis-à-vis L-1 quoted amount for due fulfillment of contract. Such ASD could be in the form of DD / Banker Cheque in the Bank's name as per format approved by the Bank. On successful completion of work ASD will be returned to the contractor. In case contractor fails to complete the work in time or as per tender specification or leave the job incomplete, the bank will be at liberty to recover the dues from ASD or to forfeit such ASD as the case may be within its sole discretion.
-

- 6.3 No interest shall be paid to the amount retained by the Bank as Security Deposit.
-
- 7.0 **Signing of contract Documents**
-
- The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract attached herewith within **7 Days** from the receipt of intimation of acceptance of the tender by the Bank. 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.
-
- 8.0 **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 **45 Days (Forty Five days)** from the date of award of work.
-
- 9.0 **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.
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- 10.0 **Liquidated Damages**
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- The liquidated damages shall be 0.50% per week subject to a maximum of 5% of contract value.
-
- 11.0 **Rate and prices:**
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- 11.1 The tenderers need not quote their rates for which no quantities have been given. In case the tenderers quote their rates for such items those rates will be ignored and will not be considered during execution.
-
- 11.2 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 would be paid accordingly.
-
- 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 Architect/ SBI.
-
- 11.3 Each page of the BOQ shall be signed by the authorized person and cutting or overwriting shall be duly attested by him.
-
- 11.4 Each page shall be totaled and the grand total shall be given.
-
- 11.5 The rate quoted shall be firm and shall include all costs, allowances, taxes, levies.
-
- 11.6 The SBI reserve their rights to accept any tenders, either in whole or in part or 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.

-
- 11.7 In case it is decided by the SBI to drop one or more buildings from the scope of work at any stage of the project, the contractor 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 buildings in phases but within a reasonable time interval and the contractor 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.
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- **12. Restriction under Rule 144 9XI) of General Financial Rules 2017 of Ministry of Finance, India order no. F. No. 6/18/2019/PPD dated 23rd July 2020.**
- - 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).
 - 'Bidder' (including the terms 'tender' '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.
 - 'bidder from a country which shares land border with India (such a country); for this purpose means:
 - An entity incorporated, established or registered in such a country, or
 - A subsidiary of an entity incorporated, established or registered in such a country or
 - An entity substantially controlled through entities incorporated, established or registered in such a country, or
 - An entity whose beneficial owner is situated in such a country or
 - An Indian (or other) agent of such an entity or
 - A natural person who is a citizen of such a country or
 - A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.
- - The beneficial owner for the purpose of (iii) above will be as under:
 - 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 exercise control through other means.

- Explanation-
- “Controlling ownership interested” means ownership of or entitlement to more than twenty five percent of shares or capital or profits of the Company;
- “Control” shall include 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;
- In case of a partnership firm, the beneficial owner is the natural person(s), who whether acting alone or together, through one or more judicial person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
- In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who whether acting alone or together, through one or more judicial person, has ownership of or entitlement to more than fifteen percent of capital or profits of such association or body of individuals.
- 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;
- In case of a trust, the trustiest, 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.
- An Agent is a person to do any act for another, or to represent another in dealing with third person .
- [To be inserted in tenders for Works contracts, including Turnkey contract]. 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.
- All bidders need to submit a declaration-cum-certificate (along with evidence) in this regards as per “Annexure-I” failure to submit such valid declaration-cum-Certificate will make the bid liable for rejection.”

SIGNATURE OF THE CONTRACTOR

WITH SEAL

GENERAL CONDITIONS OF CONTRACT

Except where provided for in the description of the individual items in the Schedule of Quantities and in the specifications and conditions laid down hereinafter and in the drawings, the work shall be carried as per standard specifications and under the directions of the Employer/Architects.

5.1 INTERPRETATION

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

i) Employer : The term employer shall denote STATE BANK OF INDIA with their RBO INDORE, and any of its employees or representative authorized to act on their behalf.

ii) The BANK : The term BANK shall mean STATE BANK OF INDIA BANK, the Employer.

iii) Architects : The term Architects shall means M/s Minu & Sharat Associates, E8/19, Doorsanchar Nagar, Gulmohar Colony, Bawadia Kalan, BHOPAL 462039 or in the event of his/their ceasing to be the Architects for the purpose of this contract such other persons as the Employer shall nominate for the purpose.

iv) The Engineer in charge : The term means Engineer to STATE BANK OF INDIA of the STATE BANK OF INDIA deployed to look after the work.

v) Site Engineer : The term shall means person posted at site who shall work under the orders of Architects/Employer/Engineer-in-charge to inspect the works.

vi) Contractor : The term Contractor shall mean _____ (name and address of the contractor) and his/their heirs, legal representatives assigns and successors.

vii) Site : The site shall mean the site where the works are to be executed as shown within boundary on the Site Plan including any building and erections thereon allotted by the Employer for the Contractor's use.

viii) Drawings : The work is to be carried out in accordance with drawings, specifications, the schedule of quantities and any further drawings which may be supplied or any other instruction, which may be given by the employer during the execution of the work.

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

In case any detailed drawings are necessary, contractor shall prepare such detailed drawings and/or dimensional sketches therefore and have it confirmed by the employer prior to taking up such work.

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

ix) "The works" shall mean the work or works to be executed or done under this contract.

x) "Act of Insolvency" shall mean any act as such as defined by the Presidency Towns Insolvency Act or in Provincial Insolvency Act or any Amending Statutes.

xi) "The Schedule of Quantities" shall mean the schedule of quantities as specified and forming part of this contract.

xii) "Priced Schedule of Quantities" shall mean the schedule of quantities duly priced with the accepted quoted percentage of the contractor.

xiii) Order of precedence for any ambiguity in the schedule of quantities, general conditions, special conditions, specifications and drawings for the contractor shall be as per the decision of the

Employer and the same will be binding on the Contractor, and shall be read as under in the decreasing order of importance.

- a) Schedule of Quantities.
- b) Drawings.
- c) Special Conditions.
- d) General Conditions.
- e) Technical Specifications of Contract.
- f) C.P.W.D. specifications.
- g) Bureau of Indian Standards specifications.
- h) State P.W.D./General Engineering Practice.

Any ambiguity observed shall be brought to the notice of Employer and be executed after obtaining approval from the Employer.

5.2 SCOPE

The work consists of Civil Works of STATE BANK OF INDIA , COLLECTORATE BRANCH, INDORE, in accordance with the "Drawings" and "Schedule of Quantities". The Civil works etc. complete are within the scope of this tender. It includes furnishing all materials, labour, tools and equipment and management necessary for, and incidental to, the construction and completion of the work. All work, during its progress and upon completion shall conform to the lines, elevations and grades as shown on the drawings furnished by the employer. Should any detail essential for efficient completion of the work be omitted from the drawings and specifications it shall be the responsibility of the contractor to inform the employer and to furnish and install such detail with employer's concurrence, so that upon completion of the proposed work the same will be acceptable and ready for use.

Employer may in their absolute discretion issue further drawings and/or written instructions, details, directions and explanations, which are, hereafter collectively, referred to as "the employer's instructions" in regard to :

- a) The variation or modification of the design quality or quantity of works or the addition or omission or substitution of any work.
- b) Any discrepancy in the drawing or between the schedule of quantities and/or drawings and/or specifications.
- c) The removal from the site of any defective materials brought thereon by the contractor and the substitution of any other material thereof.
- d) The demolition/removal and/or re-execution of any work executed by the contractors.
- e) The dismissal from the work of any persons employed thereupon.
- f) The opening up for inspection of any work covered up.
- g) The rectification and making good of any defects under clauses hereinafter mentioned and those arising during the maintenance period (retention period).

The contractor shall forthwith comply with and duly execute any work comprised in such employer's instructions, provided always that verbal instructions, directions and explanations given to the contractor's or his representative upon the works by the employer shall if involving a variation be confirmed in writing to the contractor/s within seven days. No works for which rates are not specifically mentioned in the priced schedule of quantities, shall be taken up without written permission of the employer. Rates of items not mentioned in the priced schedule of quantities shall be fixed by the employer in consultation with the Architects as provided in clause "variations".

5.3 TENDERER SHALL VISIT THE SITE

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

5.4 TENDERS

The entire set of tender paper issued to the tenderer should be submitted duly priced and also signed on the last page together with initials on every page. Initials/Signature will indicate the acceptance of the tender papers by the tenderers.

The schedule of quantities shall be filled in as follows :

- i) The rates column to be legibly filled in ink in both English figures and English words.
- ii) Amount column to be filled in figures for each item and the amount for each subhead as detailed in the "Schedule of Quantities".
- iii) All corrections are to be initialed.
- iv) The "Rate Column" (for alternative items shall be filled up).
- v) The "Amount" for alternate items of which the quantities are not mentioned shall not be filled up.
- vi) In case of any errors/omissions in the quoted rates, the rates given in the tender marked "original" shall be taken as correct rates.

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

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

The BANK reserves the right to accept the tender in full or in part and the tenderer shall have no claim for revision of rate or other conditions if his tender is accepted in parts.

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

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

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

The employer has power to add to, omit from any works as shown in drawings or described in specifications or included in schedule of quantities and intimate the same in writing but no addition, omission or variation shall be made by the contractor without authorisation from the Employer. No variation shall vitiate the contract.

The tenderer shall note that his tender shall remain open for consideration for a period of 90 days from the date of opening of the tender (Envelope No. 3).

5.5 AGREEMENT

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

5.6 PHOTOGRAPHS

The contractor shall supply the Architect & Employer weekly with well executed unmounted photographs 4 (four) No. of size 200 x 250mm in duplicate showing the progress of the works and also such particular section of the works, site plan, machinery or materials as the Engineer may direct within his quoted prices.

5.7 GOVERNMENT AND LOCAL RULES

The contractor shall conform to the provisions of all local By-laws and acts relating to the work and to the regulations etc. of the Government and local authorities and of any company with whose system the structure is proposed to be connected. The contractor shall give all notices required by said act, rules, regulations and Byelaws etc. and pay all fees payable to such authorities for execution of the work involved. The cost, if any, shall be deemed to have been included in his quoted rates, taking into account all liabilities for licenses, fees for footpath encroachment and restorations etc. He shall indemnify the employer against such liabilities and shall defend all actions arising from such claims or liabilities.

5.8 TAXES (GST)

The tenderers to exclude GST, which shall be payable by the Bank separately as applicable. However, work contract tax shall be deducted at source at the specific rate in state legislative, if applicable. The certificate in respect of T.D.S. shall be issued by the BANK as per rate. No claim whatsoever on this account shall be entertained.

5.9 PROVISIONAL SUM (P.S.)

All provisional sums described in the schedule of quantities as P.S. shall be exclusively allotted to the purchase of materials and not for any handling and fixing to be done by the contractor. Such costs of handling and fixing with profit (including transport charges if required) shall be separately included in the contract price as described in the schedule of quantities. The disposal of the amounts covered under this head will be absolutely at the discretion of the employer. Contractor is to make payments for these materials to the suppliers on certificate or order issued by the employer and realise them through his bills from the employer.

5.10 QUANTITY OF WORK TO BE EXECUTED

The quantities shown in the schedule of quantities are intended to cover the entire new structure indicated in the drawings but the Employer reserves the right to execute only a part or the whole or any excess thereof without assigning any reason therefore.

5.11 OTHER PERSONS ENGAGED BY THE EMPLOYER

The employer reserves the right to execute any part of the work included in this contract or any work which is not included in this contract by other agency or persons and contractor shall allow all reasonable facilities and use of his scaffolding for the execution of such work. However the contractor shall employ "A" grade Licence holder Civil contractor to Complete the Civil work in the scope of the tender

5.12 EARNEST MONEY AND SECURITY DEPOSIT

The tenderer will have to deposit an amount of RS 15000/- in the form of BANK draft drawn in favour of RM, RBO- INDORE a/c (*name of/Contractor's firm*) at the time of submission of tender as an Earnest Money. The employer is not liable to pay any interest on the Earnest Money. The Earnest Money of the unsuccessful tenderers will be refunded without any interest soon after the decision to award the work is taken or after the expiry of the validity period of the tender.

The successful tenderer to whom the contract is awarded will have to deposit an initial security deposit, a further sum to make up 2% of the value of the accepted tender including the Earnest Money. The initial Security Deposit will have to be made by the contractor to the BANK within 14 days of acceptance of award letter, failing which the employer at his discretion may revoke the letter of acceptance and forfeit the earnest money deposit furnished along with the tender. The initial security deposit shall be accepted in the form of Demand draft and not by BANK Guarantee. The initial security will be refunded to the contractor within fourteen days after the issue of certificate of virtual completion.

Apart from the initial security deposit made as above, retention money shall be deducted from the progressive running bills at 10% of the gross value of each running bill. However the retention money on secured advance payable will not be deducted.

The retention amount of 5% will be refunded to the contractor in the Final bill and balance 5% will be refunded fourteen days after the defect liability period. Provided the contractor has satisfactorily carried out all the works and to all the defects in accordance with the conditions of contract. No interest is allowed on Retention Money.

5.13 CONTRACTOR TO PROVIDE EVERYTHING NECESSARY

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

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

The contractor shall supply, fix and maintain at his own cost for the execution of any work, all tools tackles, machinery and equipment's and all the necessary scaffolding, , watching and lighting by night as well as by day required not only for the proper execution and protection of the said work but also for the protection of the public and safety of any adjacent roads, streets, walls, houses, buildings, all other erections, matters and things and the contractor shall take down and remove any or all such scaffolding, etc. as occasion shall be required or when ordered to do so and shall fully reinstate and make good all matters and things distributed during the execution of works to the satisfaction of the Employer/Architect.

The Contractor shall at all times give access to workers employer by the Architect / Employer or any men employed on the buildings and to provide such parties with proper sufficient and if required special scaffolding, hoists and ladders and provide them with water and lighting and leave or make any holes, grooves etc. in any work where directed by the employer as may be required to enable such workmen to lay or fix pipes, Civil wiring, special fittings etc. The quoted rates of the tenders shall accordingly include all these above mentioned contingent works.

5.14 TIME OF COMPLETION, EXTENSION OF TIME & PROGRESS CHART

5.14.1 Time of completion

The entire work is to be completed in all respects within the stipulated period. The date of commencement will be Three days from the date of acceptance letter issued to the contractor or the day on which contractor is instructed to take possession of site, whichever is latter. Time is the essence of the contract and shall be strictly observed by the contractor.

The work shall not be considered as completed until the Employer have certified in writing that work has been completed and the defects liability period shall commence from the date of such certificate.

5.14.2 Extension of Time

If, in the opinion of the Employer/Architect the works be delayed

- (a) by reason of any exceptionally inclement weather, or
- (b) by reason of instruction from the employer in consequence of proceedings taken or threatened by or disputes, with adjoining or neighboring owners or
- (c) by the works, or delay, of other contractors or tradesmen engaged or nominated by the Employer and not referred to in the specification or
- (d) by reason of authorized extra and additions or
- (e) by reason of any combination of workmen or strikes or lockout effecting any of the building trades or
- (f) from other causes which the employer may consider are beyond the control of the contractor, the Employer at the completion of the time allowed for the contract, shall make fair and reasonable extension of the time for completion in respect therefore. In the event of the Employer failing to give possession of the site upon the day specified above the time of completion shall be extended suitably.

In case of such strikes or lockouts, as are referred to above, the contractor, shall immediately give the employer, written notice thereof. Nevertheless, the contractor shall use his best endeavors all that to prevent delay, and shall do all that may be reasonably required, to the satisfaction of the employer to proceed with the works and on his doing so that it will be ground of consideration by the employer for an extension of time as above provided. The decision of the Employer as to the period to the allowed for an extension of time for completion hereunder (which decision shall be final and binding on the contractor) shall be promulgated at the conclusion of such strike or lockout and the employer shall then, in the event of an extension being granted, determine and declare the final completion date. The provision in clause 5.15 with respect to payment of liquidated damages shall, in such case, be read and construed as if the extended date fixed by the employer were substituted for and the damage shall be deducted accordingly.

5.14.3 Progress of work

During the period of construction the contractor shall maintain proportionate progress on the basis of a programme chart submitted by the contractor immediately before commencement of work and agreed to by the employer/Architect. Contractor should also include planning for procurement for scarce material well in advance and reflect the same in the programme chart so that there is no delay in completion of the project.

5.15 LIQUIDATED DAMAGES

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

0.5% of the tendered amount shown in the tender per week subject to ceiling of 5% of the accepted contracted sum.

5.16 TOOLS, STORAGE OF MATERIALS, PROTECTIVE WORKS AND SITE

OFFICE REQUIREMENTS

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

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

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

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

The contractor shall arrange for temporary latrines for the use of workers and field staff and keep the same in a clean sanitary condition to the satisfaction of the Public Health Authorities and shall cause such latrines and soil to be cleared away whenever necessary and shall make good all the works disturbed by these conveniences.

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

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

5.16.2 Protective Measures

The contractor from the time of being placed in possession of the site must make suitable arrangements for watching, lighting and, protecting the work, the site and surrounding property by day, by night, on all days including Sundays and other holidays.

Contractor shall indemnify the employer against any possible damage to the building, roads, or member of the public in course of execution of the work.

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

5.16.3 Storage of materials

The contractor shall provide and maintain proper sheds for the proper storage and adequate protection of the materials etc., and other work that may be executed on the site including the tools and materials of subcontractors and remove same on completion.

5.16.4 Tools

All instruments like steel tape etc. which is found necessary for the works shall be provided by the contractor for due performance of the contract.

All measuring tapes shall be of steel and suitable scaffolding and ladders that may be require for safety taking measurements and shall be supplied by the contractor.

The Mistry's and the supervisors on the works shall carry with them always a one meter or two meter steel tapes, a measuring tape of 30 meters, a spirit level, a plumb bob and a square and shall check the work to see that work is being done according to the drawings and specifications. The site engineer will use any or all measuring instruments or tools belonging to the contractor as he chooses for checking the works executed or being executed on the contract.

The contractor should cover in his rates for making provisions for all reasonable facilities for the use of his scaffolding, tools and plants etc. by subcontractors for their work.

5.17 NOTICE AND PATENTS OF APPROPRIATE AUTHORITY AND OWNERS

The Contractor shall confirm to the provisions or any acts of the legislature relating to the work, and to the regulations and By-Laws of any authorities, and / or any water, lighting and other companies, and / or authorities with whose system the structures were proposed to have constructed and shall before making any variation from the drawings or specifications that may be associated to so confirm, give the Employer/Architects written notice, specify the variations proposed to be made and the reasons for making them and apply for instructions thereon. The Employer on receipt of such intimation shall give a decision with a reasonable time.

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

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

5.18 CLEARING SITE AND SETTING OUT WORKS

The contractor shall set out the works and shall be responsible for the true and perfect setting out of the work and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time, any error shall appear during the progress of any parts of the works the contractor shall at his own expenses rectify such error, if called upon to the satisfaction of the employer. The contractor shall further set out the work to the alternative positions at the site until one is finally approved and the rates quoted in his tender should include for this and no extra on this account will be entertained.

5.19 ACCESS

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

5.20 MATERIALS, WORKMANSHIP, SAMPLES, TESTING OF MATERIALS

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

If required by the Employer/Architect the contractor shall have to carry out tests on materials and workmanship in approved materials testing laboratories or as prescribed by the employer at his own cost to prove that the materials etc. under test confirming to the relevant IS standards or as specified in the specifications. The necessary charges for preparation of mould (in case of concrete cube), transporting, testing etc. shall have to be borne by the contractor. No extra payment on this account would in any case be entertained.

All the materials (except where otherwise described) stores and equipment required for the full performance of the work under the contract must be provided through normal channels and must be the best of their kind available and contractor/s must be entirely responsible for the proper and efficient carrying out of the work. The work must be done in the best workman like manner. Samples of all materials to be used must be submitted to the Employer/Architect when so directed by the Engineer/Architects and written approval from Employer/Architect must be obtained prior to placement of order. The approved samples shall be kept with the Employer till the completion of work.

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

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

5.21 REMOVAL OF IMPROPER WORK

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

5.22 SITE ENGINEER

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

The Site Engineer shall have power to give notice to the contractor or to his foreman of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the employer is obtained. The work will from time to time be examined by the Architects, Engineer from the premises department of the Employer and the Site Engineer. But such examination shall not in any way exonerate the contractor from the obligation to remedy and defects which may be found to exist at any stage of the work or after the same is complete. Subject to the limitations of this clause the contractor shall take instructions only from the Employer.

5.23 CONTRACTOR'S EMPLOYEES

The Contractor shall employ technically qualified and competent supervisors for the work who shall be available (by turn) through out the working hours to receive and comply with instructions of the Employer/Architects. The contractor shall engage at least one experienced Engineer as site-in-charge for execution of the work. The contractor shall employ in connections with the work persons having the appropriate skill or ability to perform their job efficiently.

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

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

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

The contractor shall comply with the provisions of all labour legislation's including the requirements of :

- a) The payment of Wages Act.
- b) Employer's Liability Act.
- c) Workmen's Compensation Act.
- d) Contractor Labour (Regulation & Abolition) Act, 1970 and Central Rules 1974.
- e) Apprentices Act 1961.
- f) Any other Act or enactment relating thereto and rules framed there-under from time to time.

The contractor shall keep the Employer saved, harmless and indemnified against claims if any of the workmen or any other person and all costs and expenses as any be incurred by the Employer in connection with any claim that may be made by any workman or any other person.

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

The contractor shall arrange to provide first aid treatment to the labourers engaged on the works. He shall within 24 hours of the occurrence of any accident at or about the site or in connection with execution of the works, report such accident to the employer and also to the competent authority where such report is required by law.

5.24 DISMISSAL OF WORKMEN

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

5.25 ASSIGNMENT

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

5.26 DAMAGE TO PERSONS AND PROPERTY INSURANCE ETC.

The contractor shall be responsible for all injury to the worker or workmen or persons, or things and for all damages to the project works, materials, equipments, structural and/or decorative part of property which may arise from the operations or neglect of himself or of any subcontractor or any of his or a subcontractor's employees whether such injury or damage arise from carelessness, accident or any other cause whatsoever in any way connected with the carrying out of this contract. The clause shall be held to include interalia any damage to buildings whether immediately adjacent or otherwise and any damage to roads, streets, foot paths or ways as well as damages caused to the buildings and the works forming the subject of this contract by rain, wind or other inclemency of the weather. The contractor shall indemnify the employer and hold harmless in respect of all and any expenses arising from any such injury or damages to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of compensation or damage consequent upon such claim.

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

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

The employer shall be at liberty and hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or accruing from or in respect of any such claim or damages from any sums including the total security deposit due or to become due to the contractor.

5.27 INSURANCE

Unless otherwise instructed the contractor shall insure the works for all risk (include fire, flood, earthquake & third party) of the contractor for total tender value and keep them insured until the virtual completion of the contract against any loss or damage of the material and of the project. The insurance must be placed with a company approved by the Employer in the joint names of the Employer and the contractor for such amount and for any further sum if called to do so by the Employer. The premium of such further sum being allowed to the contractor as an authorized extra. The contractor shall deposit the policy and receipt premium paid with the Employer within twenty one days from the date of issue of work order unless otherwise instructed. In default of the contractor insuring as provided above the Employer on his behalf may so insure and may deduct the premiums paid from any money due, or which may become due to the contractor. The contractor shall as soon as the claim under the policy is settled or the work reinstated by Insurance Company should they elect to do so, proceed with due diligence with the completion of the works in the same manner as though the fire has not occurred and in all respects under the conditions of the contract. The Contractor in case of rebuilding or reinstatement after fire shall be entitled to extension of time for completion as the Employer may deem fit.

5.28 ACCOUNTS RECEIPT & VOUCHERS

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

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

PAYMENTS

All bills shall be submitted by the contractor in the form prescribed by the employer. Normally one interim bill shall be prepared each month subject to minimum value for interim certificate as stated in these documents. The bills in proper forms must be duly accompanied by detailed measurements in support of the quantities of work done and must show deductions for all previous payments, retention money etc. The bill shall be checked at site by site Engineer and thereafter the Architect shall issue a certificate after due scrutiny of the contractor's bill which may be further verified by the Employer and the contractor shall be entitled to payment there of, within the period of honoring certificates named in these documents, as per final verified amount by the Employer.

The amount as stated in an interim certificate

shall be the total value of work properly executed and secured advance on the materials as described under the heading of secured advance less the amount to be retained by the employer as retention money vide clause 5.12 of these conditions and less installments previously paid under these conditions, provided the such certificate shall only include the value of said material and goods as and from such time as they are reasonably, properly and not

prematurely brought to or placed adjacent to the work and then only if adequately protected against weather or other casualties.

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

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

All the interim payments shall be regarded as payment by way of advance against the final payments only and not as payments for work actually done and completed and shall not preclude the requiring of bad unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or to be considered as an admission of the due performance of the contract or any part thereof in any respect or the accruing of any claim, nor shall, it conclude determine or affect in any way the powers of the employer under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for completion of the work or of the date of certificate of virtual completion furnished by employer and payment shall be made within six weeks after issue of certificate of the Architect.

5.30 SECURED ADVANCE FOR MATERIAL AT SITE

No secured advance shall be paid.

5.31 FINAL PAYMENTS

The period of Final Measurements will be One Month from date of Completion, The final bill shall be accompanied by a certificate of completion from the Employer, payments of final bill shall be made after deduction of Retention Money as specified in clause 5.12 of these conditions, which sum shall be refunded after the completion of the Defects Liability Period after receiving the Employer and Architect's certificate that the contractor has rectified all defects to the satisfaction of the Employer and Architects. The acceptance of payments of the final bill by the contractor would indicate that he will have no further claim in respect of the work executed.

5.32 VARIATION/DEVIATIONS

The contractor may when authorized and shall, when directed in writing by the employer add or omit, or vary the works shown in the drawings or described in the specifications or included in the priced schedule of the quantities. The contractor on his own accord shall make no addition, omission or variation without such authorization of direction. A verbal authorization of direction by the employer shall when confirmed correctly by the contractor in writing within 3 days shall be deemed to have been given in writing.

The contractor shall send to the Architect/Employer once in every Month a statement giving particulars, as full and detailed as possible, of all claims for any additional payment to which the contractor may consider himself entitled and of all extra or additional work ordered by the employer which he has executed during the preceding month.

No final interim claim for payment for any such work or expense, will be considered which has not been included in such a statement provided always that the Architect shall be entitled after taking employer's sanction to authorize payment to be made for any such work or expense, notwithstanding the contractor's failure to comply with this condition, if the contractor has, at the earliest practicable opportunity, notified the Architect in writing that he intends to make a claim for such work.

The rates for additional, altered, substituted work shall be arrived at in accordance with the following rules :

i) The net rates or prices in the contract schedule shall determine the valuation of (the rates for) the extra work (items) where such extra work is of similar character and is executed under similar conditions as the work priced therein.

ii) If the rates for the extra, altered or substituted or (deviated) work are not provided for (available) in the schedule of quantities, they shall to the extent possible be derived out of rate given in that schedule for similar or near similar items. For the purpose of such deviation, where necessary and when so directed, the contractor shall furnish detailed analysis for the said similar or near similar items in the contract schedule. For such portions of the analysis, for the extra, altered or substituted (deviated) work for which prices cannot be abstracted from the corresponding analysis of rates for the said similar or near similar items in the contract schedule, market rates substantiated by purchase bills/vouchers dependable printed price schedule of building materials of different type shall be adopted, using factors and constants for quantum of materials, labour, T & P and sundries, from standard analysis of rates adopted by the National Building Organization, Ministry of Works and Housing, Government of India in preparation of All India Standard Schedule of Rates, 2002/DAR and adding 10% over towards profit and overheads. When called upon to do so, the contractor shall submit the required purchase bills/vouchers.

iii) In respect of a contract which incorporates more than one schedule, the rate applicable in case (i) above if not provided for in the schedule pertaining to the work in which the addition, alteration or substitution (deviation) occurs, shall be taken as the lowest applicable rate in other schedules. Similarly in case (ii) above if similar in near similar items cannot be found in the schedule pertaining to the work in which the addition, alteration or substitution (deviation) occurs, similar or near similar items from the other schedule shall be adopted.

iv) In the case of additional, altered substituted (deviated) for which rates cannot be reasonably be derived as at (ii) and (iii) above, the rates shall be worked out adopting market prices, substantiated by purchase bills/vouchers using factors and constants for quantum of materials, labour, T & P and sundries from standard analysis of rates adopted by the National Building Organization, Ministry of Works and Housing, Government of India in preparation of All India Standard Schedule of Rates, 2002 DAR and adding 10% over towards profit and overheads. When called upon to do so the contractor shall submit his purchase bills/vouchers to the Architect's and Employer.

v) The question as to what particular items, being similar or near similar to the additional, altered or substituted (deviated) work in the contract schedule are to be adopted for deviation of rates for the additional, altered for substituted deviated work and whether the said rates cannot be derived from similar or near similar items in the contract schedule will decided by the employer.

vi) In case (ii) to (iv) the contractor is required to submit his analysis of rates adopting the principles enunciated and the Architect, after scrutinizing the analysis any other papers furnished will allow such rates as he considers reasonable after obtaining Employer's sanctions.

vii) Where extra work is of such a nature that it cannot be properly measured or valued, the contractor shall be allowed day work priced at the net rates stated in the tender or the priced schedule of quantities or if not so stated then in accordance with the minimum local day work rates and wage for the district notified by the concerned authority provided that in either case if required by the Architects, vouchers, muster rolls and other documents, required for proper verification of the labour employed and the materials deployed on the said work and the costs thereof be delivered to the Site Engineer, Architect or his representative on or before the end of the week following that in which the work has been executed.

The question as to whether extra work is of such nature that it cannot be properly measured or valued will be decided by the Architects and Employer. The margin to be allowed on actual costs to the contractor towards profit and overhead shall be 15%.

5.33 DEVIATION LIMIT FOR TENDER QUANTITIES BEYOND 25%

The tender rates shall hold good for any increase in the tendered quantities up to variation of 25%. In case tender quantities of an individual item exceeds the deviation limit of 25%, the same item is to be got approved by submitting the **Market Rate Analysis** of the above item, negotiated, and got to be approved by the competent authority. Please note that in no case contractor should execute the deviated item without prior approval the rates for the excess quantities. Over and above the deviation limit shall be payable as per market rate analysis, sustained by purchase vouchers/bill using constant only of materials, labour, T & P etc. from all Indian Standard analysis

of rates published by NBO/DAR with 15% contractor's profit and overheads. For non schedule items, constant of material, labour, T & P etc. shall be decided by the Engineer in-charge of Employer, and Architect based on the actual observation at site.

5.34 SUBSTITUTION Should the contractor desire to substitute any materials and workmanship, he/they must obtain the approval of the Architect/Employer in writing for any such substitution well in advance. Materials designated in this specification indefinitely by such terms as "Equal" or "other approved" etc., specific approval of the Employer/Architect has to be obtained in writing.

5.36 CLEARING SITE ON COMPLETION

On completion of the works, the contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a workmanlike condition to the satisfaction of the Employer and Architects.

5.37 DEFECTS AFTER COMPLETION

The defects liability period (D.L.P.) shall commence from the certified date of virtual completion issued jointly by the BANK /Architects. The contractor shall make good at his own cost and to the satisfaction of the employer all defects, shrinkages or other faults which may appear within 12 months after completion of the work. In default, the employer may employ and pay other persons to amend and make good such damages, losses and expenses consequent thereon or incidental thereto shall be made good and borne by the contractor and such damages, losses and expenses shall be recoverable from him by the employer or may be deducted by the employer, in lieu of such amending and making good by the contractor, deduct from any money due to the contractor a sum equivalent to the cost of amending such work and in the event of the amount retained being insufficient, recover that balance from the contractor from the amount retained under clause No. 5.12 together with any expenses the Employer may have incurred in connection therewith.

5.38 CONCEALED WORK

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

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

5.40 SUSPENSIONS

If the contractor, except on account of any legal restraint upon the Employer preventing the continuance of the work, abandons, suspends work or in the opinion of the Employer, the contractor neglects or fails to proceed with due diligence in the performance of his part of the contract, the Employer shall have the power to give notice in writing to the contractor requiring the work be proceeded within a reasonable manner and with reasonable dispatch, such notices purport to be a notice under this clause.

After such notice shall have been given the contractor shall not be at liberty to remove from the site of the works or from any ground contiguous thereto any plant or materials to subsist from the date of such notice being given until the notice shall have been complied with. If the contractor shall fail for 7 (seven) days after such notice has been given to proceed with the works as therein prescribed, the Employer may proceed as provided in clauses 5.41 (Termination of contract by Employer).

5.41 TERMINATION OF CONTRACT BY EMPLOYER

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

5.41 ARBITRATION

Settlement of Disputes and Arbitration

Except where otherwise provided in the contract all questions and disputes relating 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 order 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 there of shall be dealt with as mentioned hereinafter.

- i) 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 the made from contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim or dispute to the Assistant General Manager (Premises & Estate)/Dy. General Manager (Premises). S.B.I. and endorse a copy of the same to the Architect, within 60 Days from the date of disallowance there of 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 Bank 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 Asst. General manager (Premises & Estate)/Dy. General Manager (Premises) in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his right in respect of any claim not notified to the Asst. General Manager (Premises & Estate)/Dy. General Manager (Premises) in writing in the manner and within the time aforesaid.

- ii) The Asst. General Manager (Premises & Estate)/Dy. General Manager (Premises) shall give his decision in writing on the claims notified by the contractor. The contractor may within 60 Days of the receipt of the decision of the Asst. General Manager (Premises & Estate)/Dy. General Manager (Premises) submit his claims to the conciliating authority namely the Circle Development Office/General Manager (O.L. & Corporate Services). S.B.I. for conciliation alongwith all details and copies of correspondence exchanged between him and the Asst. General Manager (Premises & Estate)/Dy. General Manager (Premises).
- iii) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 60 DAYS of termination there of shall give a notice to the concerned Chief General Manager/Dy. Managing Director & Corporate Development Office 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 of 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 Chief General Manager/Dy. Managing Director & Corporate Development Officer. It will also be no objection to any such appointment that the Arbitrator so appointed is a Bank Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as Bank Officer. F 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 Chief General Manager / Dy. General Managing Director & C.D.O. 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 Chief General Manager /Dy. Managing Director & Corporate Development Officer 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 statutory modification or reenactment there of 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 arbitrator shall, if required to be paid before

the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part there of shall be paid and fix or settle the amount of costs to be so paid.

5.44 SPECIALISTS WORKS

The Contractor must associate himself with the specialist firm to be approved by the BANK,/ Architect in writing for wooden flooring for Civil works are to be executed by specialist firms.

5.45 CONTRACT DRAWINGS GENERAL

Two copies of each of the drawings and one copy of each of the condition of contract specification tender preamble and bill of quantities will be provided for the use of the contractor who must satisfy himself as to the accuracy of the said copies in every detail, and make all other copies necessary for the conduct of the work. Any comments on drawings to be given by the contractor within 7 days from receiving of drawings.

One copy of each drawing or sketch furnished to the contractor shall be kept in an office at the works and the Engineer or any person authorized by the Employer shall have free access to the drawings and sketches whenever they desire.

5.46 RIGHTS OF TECHNICAL SCRUTINY BY CHIEF TECHNICAL EXAMINER

The work is liable to be technically audited by the Chief Technical Examiner of the Central Vigilance Commission Government of India from time to time. Any defects, improvements or testing etc. pointed out by the Chief Technical Examiner should be carried out by the contractor at his own cost and any deduction suggested by the CTE will be effected.

The Employer shall have a right to cause a technical examination and audit of works and the final bills of the contractor including all supporting vouchers, abstract, etc. to be made at the time of payment of the final bill. If as a result of this examination or otherwise any sum is found to have been over paid in respect of any work done by the contractor under the contract the contractor shall be liable to return the amount of over payment and it shall be lawful for the employer to recover the same from him from any sum or sums due to him and in any other manner legally permissible and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by the employer.

Any sum of money due and payable to the contractor (including Security Deposit returnable to him) under this contract may be appropriated by the Employer and set off against any claim of the employer of the payment of a sum of money arising out of or under any other contract made by the contractor with employer.

5.47 WATCHING AND LIGHTING

The contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the Architects and Employer for the protection of the works or for the safety and convenience of those employed on the works or the public.

5.48 CONTROL RECORDS

The under-noted records books at the site of work shall be maintained in addition to normal routine requirements by the contractor.

- a) Daily progress record.
- b) Work site order book.
- c) Instruction by BANK's Officers.
- d) Test registers of other materials/fittings fixtures equipments as stipulated in the tender.
- e) Register of drawings and working details.
- f) Log book of defects.

g) Hindrance registers giving details of commencement and removal of each hindrance.

h) Dismantled materials account register.

i) Supply and consumption register of scarce / costly materials like laminates special paints white cement, or any material as directed by Architect / Employer.

j) Specifications C.P.W.D. & I.S.I. as applicable to the contract.

k) IS : 1200 relating to measurements.

l) Conversion Table IS 786.

These registers are to be got signed by the Bank's Engineer/ Architect on their visits.

5.49 SECURITY ARRANGEMENT

(a) Proper arrangements shall be made to keep all records under lock and key.

(b) It shall be ensured that the contractor provides for adequate fences, watch and ward and security of basic materials such as cement and steel etc.

(c) Movement of material, stores and plant, especially of those in which the BANK has got a financial interest or those which influence progress of work, shall be strictly controlled. Checks shall be exercised at gate (entrance and exit shall be preferably through one gate only).

(d) When the work is completed and handed over to the user, the responsibility of proper security arrangement shall rest with the users.

5.50 WORKING HOURS

Site officers working hours shall normally be fixed as may be prevailing in the locality.

Normally no construction work of important structural nature shall be carried out on Sundays, Holidays and during nights. In exceptional circumstances, however, the work may be carried out with proper approval of the Site Engineer who shall depute supervision staff to be present on the occasion.

5.51 LABOUR RECORD

The contractor shall maintain relevant records and fulfill all conditions and requirements in accordance with the following Act and Rules made hereunder.

(a) The Payment of Wages Act.

(b) Employer's Liability Act.

(c) Workmen's Compensation Act.

(d) Contract Labour (Regulation & Abolition) Act, 1970 and Central Rules 1971.

(e) Apprentices Act 1961.

(f) Minimum wages Act 1948.

(g) Industrial Disputes Act 1947.

(h) Maternity benefit Act 1961.

(i) ESI Act.

(j) Payment of Bonus Act.

(k) Payment of Gratuity Act.

(l) Any other Act or enactment relating thereto and rules framed thereunder from time to time.

5.53 HANDING OVER BUILDING/PROJECT WORK TO THE BANK

Handing and taking over report and inventories/statement (in quadruplicate) at the time of handing over shall be prepared. The reports and inventories shall be signed by :

(a) The contractor (Only the relevant papers).

(b) The Site Engineer, and

(c) Competent authority in the BANK.

The following inventories/statements shall be prepared :

- i. Inventory of furniture (Table, Chairs, Almirah etc.).
- ii. Inventories of builders hardwares etc.) locks (Riim mortice and cylindrical) and night latches all with duplicate keys.
- iii. Inventory of fixtures & fittings of installations (Civil light fittings, fans, bells, air-conditioning, lifts pumps and the like).

5.54 DELINQUENCIES OF CONTRACTORS

5.54. Procedures for dealing with Delinquencies/ Defaults/ Misconduct/ Misdemeanors of tenderers/ Contractors.

- i) The undernoted delinquencies/defaults/misconduct/misdemeanors on the part of tenderer or enlisted contract will attract disciplinary action.
 - a) Incorrect information about credentials, about his performance, equipment, resources, technical staff etc.
 - b) Non-submission of the fresh/latest Income tax clearance certificate.
 - c) Irregular tendering practice.
 - d) Submission of tender containing for too many arithmetical errors and freak rates.
 - e) Revoking a tender without any valid reasons.
 - f) Tardiness in commencing work.
 - g) Poor Organisation at site & lack of his personal supervision.
 - h) Ignoring BANK's notices for replacement/rectification of rejected materials, workmanship etc.
 - i) Violating any of the important conditions of contract, i.e. site facilities, insurance, labour laws, ban on subletting etc.
 - j) Lack of promptitude and cooperation in measurement of work and settlement of final account.
 - k) Non-submission of vouchers and proofs of purchase etc.
 - l) Tendency towards putting up false and untenable claims.
 - m) Tendency towards suspension of work for frivolous reasons.
 - n) Bad treatment of labour.
 - o) Bad treatment of subcontractors (piece workers) and un-business like dealings with suppliers of materials.
 - p) Lack of cooperation with nominated contractors or BANK's labour.
 - q) Contractor becoming BANK rupt or insolvent.
 - r) Contractor's conviction by a court of law.
 - s) Failure to satisfactorily rectify defects during Defects Liability Period (DLP) and discovery of latent defects in contractor's work after the expiry of DLP of his contract.

5.54. Disciplinary action against (Delinquencies of) contractor.

ii) Action

The award of the undernoted disciplinary action shall be considered.

- a) Placing embargo on issue of tenders of temporary suspension from the BANK's approved list.
- b) Permanent ban on issue of tenders & removal from the BANK's approved list.
- c) Circulation of the contractor's name to other Public Under taking or Government Department for non-entertainment of this publication for contract work.

SPECIAL CONDITION OF CONTRACT**Scope of work**

1.0 The scope of work is to carry out for the Civil work of COLLECTORATE BRANCH, INDORE, for State Bank of India

2.0 Address of site

The site is located at SBI COLLECTORATE BRANCH, INDORE.

3.0 Dimensions and levels

All dimensions and levels shown on the drawings shall be verified by the contractor at the site and he will be held responsible for the accuracy. Figured dimensions are in all cases to be accepted and dimension shall not 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.

04 Notice of operation

The contractor shall not carry out any important operation without the Consent in with from the Bank's Engineer/Architect / Consultant:

5.0 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.

6.0 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. .

7.0 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.

8.0 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 SBI 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 SBI 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.

9.0 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.

10.0 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.

11.0 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. These equipment's 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 make the following arrangements at his own cost but not limited to 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's.
- 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

12.0 **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.

13.0 **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 / 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.

14.0 **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.

-

15.0 **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.

16.0 **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.

17.0 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.

18.0 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 SBI/ 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 SBI / 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.

19.0 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, aluminium 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.

20.0 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

21.0 Excise duty, taxes, levies etc;

The contractor shall pay and be responsible for payment of all taxes, duties, levies, royalties, fees, cess or charges except GST in respect of the works including but not limited to sales tax, tax on works contract excise duty, and octroi, except GST payable in respect of materials, equipment plant and other things required for the contract. All of the aforesaid taxes, duties, levies, fees and charges except GST shall be to the contractor's account and the SBI shall not be required to pay any additional or extra amount on this account. Variation of taxes, duties, fees, levies etc if any except GST, 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 excluding GST, 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.

22.0 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.

23.0 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 their each Running Bill for the project clearing showing major progress of work measured and claimed therein failing which the Architect/Bank may consider returning the Bill to the contractor and no claim for delay on this account will be entertained.

FORMAT OF SITE ORDER BOOK

Name of the work:

Date of Commencement:

Sr.No	Remarks/ Instructions of the Engineer/ Architect	Dated Initials of site Engineer/ Architect	Initials of the Contractor for having received the instructions	Action taken with date	Dated initials of the site Engineer	Remarks of the Architects / Bank's Officials

FORMAT OF HINDRANCE REGISTER

Name of Work	:		Date of state of work	:	
Name of Contractor	:		Period of completion	:	
Agreement No.	:		Date of completion	:	
Name of Work	:		Date of state of work	:	
Name of Contractor	:		Period of completion	:	

Sr. No.	Nature of Hindrance	Date of occurrence of hindrance	Date of which hindrance was removed	Period of hindrance	Signature Site Engineer/ Project Engineer	Remarks
1	2	3	4	5	6	7

FORMAT OF MONTHLY PROGRESS REPORT

Name of work:

Progress report for the week:

Report No.:

Sr No.	Description	Details of work location where work is done	Approximate quantity executed

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

TABLE

**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 -----
 Amount less received by Contractor in
 ----- R/A Bill (as per statement of
 Contractor)

Rs. -----

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
 (Premises)

TECHNICAL SPECIFICATIONS

11.1 SPECIFICATIONS

All materials and works shall conform to the latest edition of the specifications in the Central Public Works Department.

In case specification for a specific material or work are not available in the CPWD, specifications for such items, specifications as per National Building Code (NBC) shall be followed.

In case such specifications in the above two said standards are not available, the Indian Standard Specifications (ISI) shall be followed.

Standards issued elsewhere shall only be used only if approved by the employer and for those materials/works only for which appropriate standard specifications do not exist.

Samples of all the important materials to be used in the works shall be subjected to inspection and test. Samples of all materials proposed to be employed in the permanent works shall be submitted to the Engineer for approval before they are bought to the site. These samples shall be submitted 15 days in advance of the material to be used at site. If the sample is approved the material shall be arranged and bought to site within ten days. Samples provided to the Architect and Employer or his representatives for their retention are to be labelled boxes suitable for storage.

Specification for some of the specialised items of work are appended in this document. Specification for various items of work available in CPWD specifications shall be followed for respective item of work with the modifications as stated in the item of schedule of work.

LIST OF APPROVED MATERIAL AND MAKES OF ITEMS

(THE MAKE LISTED BELOW SHOULD BE FIRST APPROVED BY THE BANK BEFORE USE IN
CONSTRUCTION)

- | | | | |
|-----|--------------------------|---|--|
| 1. | CEMENT | : | ULTRATECH, LAFARGE, JAYPEE,
ACC, MYCEM OR EQUIVALENT |
| | WHITE CEMENT | : | BIRLA WHITE, |
| 2. | STEEL FOR REINFORCEMENT | : | TESTED STEEL OF GOYAL,
RATHI, TATA, SAIL OR MAGNUM
(TMT STEEL) EQ. |
| 3. | BRICKS | : | BRICKS OF METRIC SYSTEM |
| 4. | WOOD | : | SECOND CLASS C.P. TEAK
UNLESS OTHER WISE SPECIFIED. |
| | SOFT WOOD | : | KAIL WOOD, HOLLOCK |
| 5. | BITUMIN | : | STP OR ANY OTHER I.S.I. MARKED
BRAND |
| 6. | ALUMINIUM WINDOWS | : | ZINDAL HINDALCO |
| 7. | EXTERNAL PUTTY | : | BIRLA WALL CARE |
| 8. | EXTERNAL PAINTS | : | ASIAN,BERGER, DULUX, NEROLAC
ICI, EQUIVALENT |
| 9. | STEEL PRIMER | : | ASIAN, BERGER, SHALIMAR, ICI |
| 10. | SYNTHETIC ENAMEL PAINT | : | APCOLITE, NAROLAC, DULUX,
ICI, OR EQ |
| 12. | WATER PROOFING COMPOUND: | : | CICO, CHOK SEY'S, PIDILITE ,
ROFF, FOSROC, CHEMISTIK |
| 13. | BUTT HINGES | : | I.S.I. MARKED DOORSET HINGES |
| 14. | FACTORY MADE SHUTTERS : | : | ARCHID, DURO, SWASTIK,
GREEN,CENTURY, KIT |
| | (FLUSH DOORS) | | |
| 15. | PVC DOOR SHUTTERS | : | SINTEX, SPLENDOOR, GODREJ OR
EQUIVALENT |
| 16. | GALVANISED STEEL SHEETS | : | TATA, JINDAL, HINDALCO OR
EQUIVALENT |
| 17. | C.I. PIPES AND FITTINGS | : | B.I.C., HEPCO, NECO OR |

			EQUIVALENT.
18.	G.I. PIPES	:	G.S.I. AMBICA, ZENITH, TATA SWASTIK OR EQUIVALENT
20.	BRASS C.P. FITTINGS	:	JAGUAR/ PARRYWARE, KOHLAR OR EQUIVALENT
21.	GUN METAL VALVES :		LEADER, SANT OR EQUIVALENT
22.	E.W.C., O.W.C., PANS WASH BASINS, URINALS	:	HINDWARE, PARRYWARE, CERA, JAGUAR
23.	E.W.C. SEAT COVER	:	COMMANDER, PATEL OR EQUIVALENT
24.	FLUSHING SYSTEM	:	PARRY, HINDUSTAN (LOW DOWN FLUSHING SYSTEM) SANITARYWARE, CERA
25.	WATER METER	:	ANAND, ASAHI, KAYCEL, KAPSTAN OR EQUIVALENT
27.	PIGMENTS	:	TATA, SHALIMAR
28.	PVC PIPES	:	SUPREME/ KISSAN/ KASTA OR EQ.
29.	CPVC PIPES	:	NOVEON, KASTA, VECTOS OR EQ
30.	FIRE FITTING SLUICE & NRV :		KIRLOSKAR / KALPANA
31.	CEMENT BOARDS /PARTICAL	:	BISON BOARDS. NUWUD BOARDS BOARDS
32.	MORTICE LOCK, HANDLE	:	DOORSET OR EQ.
33.	DOOR CLOSERS, FLOOR SPRINGS:		EVERITE, DOORKING, HARDWYN
34.	FLOORING TILES	:	KAJARIA, BELL, NAVEEN, SOMANY, JOHNSON, RAK
35.	M.S / BRASS SCREWS	:	NETTLE FOLD
36.	MILD STEEL FOR FABRICATION	:	TATA, SAIL OR EQUIVALENT
37.	FLUSH DOOR SHUTTERS	:	ARCHID, GREEN, DURO, GREEN, CENTURY

- 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.
9. Materials with I.S.I. mark shall be used duly approved by the Banks Engineer / Architect.

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.

2. 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.

3. **River Sand** :

River sand shall confirm to IS: 383 and relevant portion of IS: 515. It shall 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.

4. **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.

5. **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 500 (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.

6. **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 40 kg. / sq.m.unless otherwise specified for first class bricks

7. **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.

8. **Timber** :

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

9. **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.

10. 1st 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 rings per 2.5 cm. width.

11. 2nd 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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 confirm to the required size. Thickness shall be specified in the respective items.

17. 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 |
| 4) | | |

18. 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.

19. 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 paints as received from the manufacturer without any admixture shall be used, except for addition of thinner, if recommended by the manufacturer.

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.

Note :

In connections with the I.S. Code numbers indicated under Section, Specification, Section A – General

Refer to the following I.S. Code numbers and the year and or otherwise latest modified I.S.Code Number.

1)	Cement	:	I.S. 269 – 1976
2)	Lime	:	I.S. 712 – 1964
			I.S. 1624 – 1960
3)	Fine – Aggregate	:	I.S. 383 – 1970
4)	Coarse – Aggregate	:	I.S. 515 – 1970
5)	Reinforcement	:	I.S. 432 – 1966 Fe 415
			I.S. 1786 – 1966 (Tor Steel)
			I.S. 1139 – 1966
6)	Bricks	:	I.S. 1077 – 1970
7)	Neeru	:	I.S. 712 – 1964
8)	Surkhi	:	I.S. 1344 – 1968
9)	Timber	:	I.S. 287 – 1960
10)	Flush Doors	:	I.S. 2202 – 1966
11)	Floor Tiles	:	I.S. 1237 – 1980
12)	Ceramic / Vitrified Tiles	:	I.S. 777 – 1970
13)	Asbestos Roofing and Rainwater pipes	:	I.S. 459 – 1962
14)	R.C.C. design mix M-25	:	I.S. 456 – 2000

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.

Excavation :

- **Footings:** Area of excavation for footing shall be measured equal to the area of the lowest concrete as shown on the drawing. Depth shall be measured vertically from ground level to bottom of concrete course or dry rubble packing as the case may be.
- **Plinth Beams:** Depth of excavation for plinth beam shall be measured from ground level upto bottom of beam and width equal to width of the beam. If a leveling course is ordered, it shall be measured upto the bottom of the Leveling course.
- Where excavation is made in trenches, measurements for cutting shall be taken by means of taps and staff and the width of concrete or rubble packing as shown on the Drawing shall be considered as the width of excavation.
- Where excavation is made for leveling the site, levels shall be taken before start and after completion of work and total quantity of excavation computed from these levels in manner approved by the Architect.
- Where soil including soft rock and hard rock are mixed, hard rock after excavation shall be stacked separately. Measurement of the entire excavation shall be taken as indicated above. Excavations of hard rocks shall be measured from stacks of excavated hard rock and reduced by 40% for bulkage and void. The quantity so arrived at shall be paid for under hard rock. The difference between the quantity of entire excavation and quantity payable under hard rock shall be paid as soil including soft rock.

Earth Filling :

In open spaces Fillings shall be measured from cross sections of embankments, levels of which are recorded by means of levels before start of work and after completion of work. When it is not possible to measure filling from cross sections, it may be measured from loose stacks or lorry measurements with previous written permission from the Architect and 20% deduction shall be made from the measured quantity to arrive at the net quantity payable.

Cement Concrete (Plain & Reinforcement):

Cement concrete in R.C.C. and P.C.C. items shall be measured exclusive of reinforcement and plaster thickness but shall include necessary costs of shuttering, centering, hire charges of all equipments, curing, hacking and fair finish. Reinforcement and plaster shall be measured and paid separately.

Items like R.C.C. precast jalli, R.C.C. pipes and other such items which are normally manufactured in factories as well as those items which have been specifically mentioned in the Schedule of Quantities shall be measured inclusive of reinforcement.

No deductions will be made for openings upto 0.1 sq.m. and no extra labour for forming such openings or voids shall be paid.

Columns shall be measured from face to face of columns / beams and shall include haunches, if any. The depth of the beams (other than raft foundations beam) shall be measured from the top of the slab to the bottom of the beam.

In case of combined footings and raft foundations, the exposed, portion of the beam rib shall be measured as beam and remaining portion measured in footing / raft slab.

Slabs (other than in raft foundations) shall be measured in bays (clear of beams) with deductions for columns portions.

Chajja: only projected portion shall be measured in Square meter.

Staircase: Measurements shall be in Cu.m. Staircase comprising if steps, soffit slab, landing slab shall be measured and paid under this them. Side parapet walls, railings, finishing of raisers and treads, M.S. reinforcement and plastering etc., shall be paid separately under respective items.

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	0.36	0.62	0.88	1.58	2.47	3.85	6.31

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

- 5 Ends of dissimilar materials (i.e. joists, beams, lintels, lofts, grinders, rafters, purlins, trusses, corbels, steps, etc.) upto 500 square centimeters in section.
- 6 Opening upto 0.1 sq.m. in section.

- 7 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.

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.

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.

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.

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.

Plastering and Pointing:

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

Net area 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.

Painting, White washing, colour washing and distempering:

All painting work shall be measured in square meters.

Net area 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 louvered (not with glazing).	-- do --	1 1/2 (for each side).
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 ¼ (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 ¼ (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

SECTION – C : WORKMANSHIP**CLEARING OF SITE, EXCAVATION AND EARTH FILLING**

Note: Workmanship for all items related to the construction work should be as per relevant I.S. Code.

General:

Trenches for wall foundations, column footings, raft foundations, pile caps, plinth beams, water tanks, cess pits, etc., shall be excavated to the exact length, width and depth shown in the figure on the drawing or as may be directed by the Architect. If taken out to greater length, width or depth than shown or required, the extra work occasioned thereby shall be done at the Contractors own expenses. Extra depth shall be brought up by plain cement concrete filling 1:4:8 proportion and extra length and width filled in by rammed earth or murum or if the Architect thinks it necessary for the stability of the work by 1:4:8 concrete, as may be directed by the Contractors costs.

Excavated material shall be used for filling in plinth, or each side of the foundation blocks or trenches or it shall be spread elsewhere on or near the site of work including watering, ramming and consolidating or carted away from site free of charge, as may be ordered.

The Contractor shall at his own expenses and without any extra charge, make provision for supporting all utility services, lighting the trenches, separating and stacking, serviceable materials neatly, shoring, timbering, stuttering, bailing out of water either sub-soil or rain water including pumping at any stage of the work. Trenches shall be kept free of water while masonry or any concrete works are in progress and until the Architects consider that concrete is sufficiently set.

Excavation excluding in Hard Rock :

Excavation shall be carried out in any type of soil, murum (soft or hard), soft rock boulders, old foundation, concrete asphalt or stone paved surfaces, old masonry or concrete (plain or reinforced).

Excavation in Hard Rock :

Rock which is in solid beds, which can only removed either by blasting or by wedging or chiseling shall be treated as hard rock. A boulder or detached rock measuring one cubic meter or more, shall blasting, wedging or chiseling.

Where hard rock is met with the blasting operations is considered necessary, the Contractor shall intimate about the same to the Architect.

The Contractor shall obtain license from District / Public authorities for carrying out blasting work as well as for obtaining transporting and storing explosives as per Explosives, Rules 1940 or as amended. He shall purchase the explosives, fuses, detonators, etc., only from a licenses dealer. He shall maintain the account of explosive etc., purchased and used by him. He shall be responsible for safe custody and proper accounting of explosives materials. The Architect shall have access to check store of explosive and accounts thereof.

Blasting shall normally be done with gun powder. Dynamite Gelatin or any other high explosive shall only be used in special cases with written permission of the Architect and District / Public authorities concerned under Explosives Rules.

Blasting operations shall be carried out under the supervision of a responsible representative of the Contractor during certain hours, preferably during lunch break as approve in writing by the Architect. The representative shall be conversant with the rules of blasting.

Proper precautions for the safety of persons shall be taken. Red flags shall be prominently displayed around the area to be blasted and all people on work expect those who actually light the fuses shall be withdrawn to a safe distance of not less than 100 meters from the blast. Blasting shall not be done within 100 meters of an existing masonry or any other kind of structure unless special precautions are taken by heavy blanketing etc.

Where Blasting is not practicable or prohibited, excavation shall be done by wedging or chiseling and it shall be restricted to the quantity required to enable the necessary foundation etc. to be put in. In case, the dimension of trenches exceed those shown in drawings or as directed by the Architect, the excess quantity shall not be paid for, the item also covers bailing out subsoil or rain water including pumping at any stage of work, shoring strutting, etc.

Earth Filling:

General: Filling shall be done with good earth, murum, stone chips, or disintegrated building debris. It shall be free from salts, organic matter, black cotton or slushy earth and combustible material. All clods shall be broken.

- **Filling in Plinth :**

Filling shall be done in layers not exceeding 25 cm., amply watered and consolidated by ramming with iron or wooden rammers weighing 7 to 8 kgs. and having base 20 cm. square or 20 cm. diameter. When the filling reaches the finished level, surface shall be flooded with water for atleast 24 hours, allowed to dry and then rammed and consolidated, after making good any settlement in order to avoid settlement at a later stage. Special care shall be taken to pack earth under plinth beams and column corners. Finished level of filling shall be kept to a slope intended to be given to the floor.

- **Filling in Outdoor portions and for Site Development:**

Shall be done in layer of 30 cm. Each layer shall be adequately watered. When filling reaches the required level the top most layer shall be dressed to proper section, grade and camber and rolled by 8 to 10 ton's power roller and adequately watered to aid compaction.

DRY RUBBLE PACKING & LEVELING COURSE.

Dry Rubble Packing: Ground shall first be leveled up and thoroughly consolidated by means of heavy log hammer or frog rams. Rubbles of specified thickness shall then be laid and set with hand. It shall be consolidated by either hand roller or wooden log hammer, free use of water being made during consolidation. All hollows and interstices after

consolidation shall be filled up with quarry spalls, stone chips etc., and the packing blinded with stone grit and watered and consolidated by log hammer.

Rubble packing in Road work shall be thoroughly consolidated by means of power rollers of 8 ton's capacity instead of log hammers and the surface shall be brought to proper grade and camber. After checking the level, grade and camber the surface will again be watered and rolled to receive road structure.

Leveling Course:

It shall be either plain cement concrete of leaner mix or lime concrete which shall be proportioned as stipulated in the relevant item and mixed and placed in position confirming to line and level show on the drawing and compacted by approved means and cured adequately.

Lime concrete shall be prepared by mixing sand and slaked lime in proportion of three parts of sand and one part of lime and ground in a suitable mill and the mortar so prepared shall be added to six parts of the brick bat passing through 50 mm. mesh, mixed well and placed in position and compacted by approved means. The concrete shall be cured adequately.

PLAIN & REINFORCED CEMENT CONCRETE

A) VOLUMETRIC BASIS:-

General : Except where they are varied by the requirements of this specification due provision of Indian Standard Specification IS-456-1964 for plain and reinforced concrete and IS-432 part I and II for Mild and Medium Tensile steel Bars and hard drawn steel wire for concrete reinforcement and any other relevant ISS applicable together with the latest amendments shall be held to be incorporated this specifications. It shall be intent of these specifications to ensure that all concrete placed at various location of the job should be durable, strong enough to carry design, loads, it should wear well and practically be impervious to water. It should be free from such defects as shrinkage, cracking and honey-combing.

Proportioning the Mix :

In ordinary concrete, excluding controlled concrete, proportions of cement to fine and coarse aggregate shall be as specified in the respective items and shall be accurately measured as in table "A" below. These proportions are based on assumption that the aggregates are dry. If aggregates are moist allowance shall be made for bulking in accordance with IS:2386/-. Allowance shall also be made for surface water present in aggregate when computing water contents. Surface water present shall be determined by one of the field methods described in IS:2386/- (Part III). In the absence of exact data, the amount of surface water may estimated by the value given in table "B" below (Table "A" and "B" please see on page nos.124 & 125).

Mixing :

Concrete of 1:2:4 or richer mix shall be mixed in an approved mechanical mixer. The mixer and mixing platform shall be suitably protected from wind and rain. Aggregates shall be accurately measured out in boxes and mixed dry along with cement, water shall be then added in measured quantity and mixing shall be continued until there is a uniform distribution of the materials and the mass is uniform in colour and in consistency but in no case shall the mixing be done for less than 2 minutes.

When hand mixing is permitted with the approval of the Architect it shall be carried out on water-tight mixing platform and care shall be taken to ensure that mixing is continued until mass is uniform in colour and consistency.

Consistency :

Quantity of water for making reinforced concrete shall be sufficient so as to ensure that concrete shall surround and properly grip all the reinforcement. The best consistency shall be that, which will flow sluggishly without flattening out and without separation of

coarse aggregates from the mortar. The degree of plasticity shall depend on the nature of work and atmospheric temperature and whether the concrete is vibrated or hand compacted. The slumps shown in table "C" obtained by standard slump test carried out in accordance with the procedure laid down in IS:119-1959 shall be adopted for different types of work.

Admixtures :

The usage of admixtures are allowed only if approved by the structural consultant and his decision in this regard shall be final.

Transportation:

Concrete shall be conveyed from the place of mixing to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of any of the ingredients. If segregation does occur during transport, the concrete shall be remixed before being placed. In no case, more than 30 minutes shall elapse between mixing and the consolidation in its position.

Placing and Compacting :

Concrete shall be placed in layers of suitable thickness or in strips and compacted before initial setting commences and should not be subsequently disturbed. Method of placing shall be such as to preclude segregation and as far as practicable the placing shall be continuous. Special care shall be taken in accordance with IS:456 while laying concrete under extreme weather.

Concrete shall be thoroughly compacted during the operation of placing and thoroughly working around the reinforcement, embedded fixtures and spaded against corners of the form work and by punning, rodding, mechanically vibrating or by any other approved means. In addition form work shall be tapped lightly by using wooden mallet at the pouring head. The number and type of vibrator to be used shall be subject to the approval of the

Architects and in general immersion type vibrators shall be used. External vibrators shall also be used whenever directed.

The intensity and duration (of vibration shall be sufficient to cause complete settlement and compaction without any stratification of successive layers or separation of ingredients or formation of liatance. Vibrator shall be inserted vertically in the concrete at points not more than 45 cm. apart and withdrawn very slowly when air bubbles no longer come on the surface. Over vibration or vibration of very wet mixes is harmful and should be avoided. Care shall be taken to utilize the vibrator only to compact the concrete and not to spread it, sufficient number of reserve vibrator in good working condition shall be kept on hand at all times, so as to ensure that there is no slackening or interruption in compacting.

Construction Joints :

Concreting shall be carried out end to end continuously as far as possible and when construction joints are totally unavoidable, it shall be located in a predetermined position approved by the Architect. The joints shall be kept at places where the shear force is the minimum and these shall be straight and at right angles to the direction of main reinforcement. When the work has to be resumed, on a surface which has hardened, such surface shall be roughened. It shall be swept clean, thoroughly wetted and covered with a 13 mm. layer of mortar composed of cement and sand in the same ration as the cement concrete mix. This 13 mm. layer of mortar shall be freshly mixed and placed immediately before the placing of the concrete.

Where the concrete has not fully hardened, all liatence shall be removed by scrubbing the Wet surface with wire or bristle brushes, care being taken to avoid dislodgment of particles of aggregate. The surface shall then be coated with neat cement grout. In horizontal joints the first layer of concrete to be placed on this surface shall not exceed 15 cm. thickness and shall be well rammed against old work, particular attention being paid to corners.

Curing :

Concrete shall be carefully protected during first stage of hardening from harmful effects of excessive heat, drying winds, rain or running water. It shall be covered with a layer of sacking, sand canvas, hessian, or similar absorbent materials and kept constantly, wet for ten days from the date of placing of concrete. Alternatively, the concrete being thoroughly wetted and covered by layer of approved water-proof material which should be kept in contact with it for seven days.

Form Work :

The form work shall conform to the shape, lines and dimensions as shown on the plans and be so constructed as to remain sufficiently rigid during the placing and compacting of the concrete and shall be sufficiently watertight to prevent loss of cement slurry from the concrete. Form work or centering shall be constructed of steel or timber and adequately designed to support the full weight of wet concrete without deflection and retain its form during laying, ramming and setting of concrete. Timber used shall be properly seasoned so as to prevent deformation when wetted.

All props shall be straight and of full height and no joints shall be allowed. Props shall be braced with thin bamboos or wooden battens and where additional staging is necessary,

extra care shall be taken to use bigger diameters props with bracing at 4 or 5 levels. All props shall be supported on sole plates and double wedges. At the time of removing props these wedges shall be gently eased and not knocked out.

All rubbish, chippings, shavings and saw dust shall be removed from the interior of the forms before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly wetter or treated with non-staining mineral oil or any other approved materials is kept out of contact with the reinforcement.

All form work shall be removed without shock or vibration and shall be eased off carefully in order to allow the structure to take up its load gradually. Forms shall not be disturbed until concrete has adequately hardened to take up superimposed load coming on it and in no circumstances shall forms be struck until the concrete may be subjected at the time of striking.

In the normal circumstances (generally where temperatures are above 21 degrees centigrade) and where ordinary cement is used, forms may be struck after expiry of following periods :

10 Walls, Columns and Vertical sides of beams	}48 hours as may be directly }by the Architect.
11 Bottom of slab upto 4.5 m. span.	}7 days.
12 Bottom of slab upto 4.5 m. span. bottom of beam and arch rib upto 6 m. span.	}14 days. } }
13 Bottom of beams and arch rib over 6 m. span.	}21 days. }

However this period may be increased or decreased at the discretion of Architects. Special care shall be taken while striking the centering of cantilevered slab canopies, portal frames, folded plate construction and period of striking centering shall be as determined by the Architect.

If directed, form shall be given an upward camber to ensure that the beams do not have any sag. Surface that becomes exposed on removal of forms shall be carefully examined and any fins, burrs, projections etc., that are detected shall be removed. Any honeycombing of minor nature shall be finished neatly with cement mortar 1:2.

Any work showing signs of damage through premature or careless removal of centering or shuttering, shall be reconstructed by the contractor at his own cost.

Strength :

Concrete mixed in the proportion desired shall have compressive strength after placing, not less than the following :

No	Concrete Mix.	Minimum compressive strength @ 7 days	Minimum compressive strength @ 28 days
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1	1:1:2	160 Kg. / Sq.m. (2250 Lbs. / Sq. inch).	250 Kg. / Sq.m. (3500 Lbs. / Sq. inch).
2	1:1.5:3	132 Kg. / Sq.m. (1875 Lbs. / Sq. inch).	200 Kg. / Sq.m. (2850 Lbs. / Sq. inch).
3	1:2:4	106 Kg. / Sq.m. (1500 Lbs. / Sq. inch).	150 Kg. / Sq.m. (2250 Lbs. / Sq. inch).

Tests : Tests on concrete shall be carried out in accordance with IS-456/- and any other is applicable. The frequency of work test shall be at such intervals as ordered by the Architect and subject to that every 150 cu.m. of concrete placed or part thereof and for a day's concrete exceeding 30 cu.m. a batch of 6 cubes shall be made for every sample and 3 of them tested after 7 days and the remaining 3 cubes shall be tested after 28 days. The criteria for acceptance of a concrete as confirming to a specified proportion / grade of concrete shall be in accordance with IS:456 and the Contractor shall entirely re-do the rejected work at his own cost. Strength of 28 days shall alone be considered for acceptance.

The Contractor shall arrange to carry out the tests in accordance with the relevant Indian Standards Specifications in an approved laboratory and the test reports in original be submitted to Architect. The entire cost of testing shall be borne by the Contractor.

Steel Reinforcement :

Reinforcement shall be accurately fabricated, placed and adequately maintained in position as shown on the drawings or as directed by the Architect. All finished bars shall be free from cracks, surface flaws, laminations, jagged and imperfect edges. Cement mortar blocks shall be used to give requisite cover as shown be firmly tied with binding wire of 16 to 18 gauge. Reinforcement shall be bent in accordance with the procedure stipulated in IS:2502-1963 and will not be straightened in a manner which will injure the material.

All reinforcement shall immediately before placing in concrete be thoroughly cleaned of loose mill scale, loose rust, oil and grease or other deleterious matter that would destroy or reduce bond.

Reinforcement in reinforced concrete members shall not be connected by welding or coupling except in accordance with relevant ISS and with the previous approval of the

Architect. Overlaps and joints shall be staggered and located at points, along the spans where neither shear nor bending moment is maximum.

Cover :

Reinforcement shall have cover as shown on the R.C.C. drawings and where not specified the thickness of cover shall be as follows. Cement mortar blocks in C.M. 1:1 shall be used for making cover blocks.

- a) At each end of reinforcing bar not less than 25 mm. not less than twice the diameter of such rod or bar.
- b) For a longitudinal reinforcing bar in a column not less than the diameter of such rod or bar. In the case of columns of minimum of 20 mm. or under whose reinforcing bars do not exceed 13 mm. the cover of 25 mm. may be used.
- c) For longitudinal reinforcing bar in a column not less than 25 mm. not less than diameter of such rod or bar.
- d) For tensile, compressive, shear or other reinforcement in a slab not less than 13 mm. nor less than diameter of such reinforcement, and
- e) For ant other reinforcement not less than 13 mm. not less than the diameter of such reinforcement.

A) WEIGH-BATCHING BASIS i.e. (DESIGN MIX CONCRETE) :

Workmanship of Design Mix Concrete shall be carried out in accordance with I.S. : 456 – 2000 and any other I.S. Code is applicable.

TABLE – A

No	Nominal Mix.	Quantity of aggregates required per 50 kgs of cement.		Quantity of water required per 50 kgs of cement.	
		Fine Cu.m. Cu.m.	Coarse	Vibrated (For dry aggregate)	Unvibrated
1	1:1:2	0.035 (1.2 C.ft.)	0.070 (2.4 C.ft.)	22 lit. (4.8 Gal.)	27 lit. (6 Gal.)
2	1:1 1/2:3	0.052 (1.8 C.ft.)	0.106 (3.6 C.ft.)	23 lit. (5 Gal.)	30 lit. (6 Gal.)
3	1:2:4	0.070 (2.4 C.ft.)	0.138 (4.8 C.ft.)	27 lit. (6 Gal.)	32 lit. (7 Gal.)
4	1:3:6	0.105 (3.6 C.ft.)	0.210 (7.2 C.ft.)	28 lit. (6.25 Gal.)	34 lit. (7.5 Gal.)
5	1:4:8	0.150 (4.8 C.ft.)	0.280 (9.6 C.ft.)	-- --	45 lit. (10 Gal.)

TABLE – B

No	Aggregate	Approx. quantity of surface water in Lit / Cu.m.
1	Very wet sand.	120
2	Moderately wet sand.	80
3	Moist sand.	40
4	Moist gravel or crushed sock. Coarser the aggregate, lesser the water it will carry.	20 to 40

TABLE – C

No.	Type of Work	<u>SLUMPS</u>	
		When vibrated	When not vibrated
1.	Mass concrete in R.C.C. foundation footings.	2.5 cms. (1")	5 cms. (2")
2.	Beams, slabs, columns with simple reinforcement.	2.5 cms. to 5 cms. (1" to 2")	5 cms. to 10 cms. (2" to 4")
3.	Thin sections with congested reinforcement.	5 cms. to 10 cms. (2" to 4")	10 cms. to 15 cms. (4" to 6")

Note : Should conditions governing slump and workability changed pointing to

advisability of an increased slump, this shall only be done by decreasing the amount of aggregate and not by increasing the amount of water.

B) WEIGH-BATCHING BASIS i.e (DESIGN MIX CONCRETE) :-

Workmanship for design mix concrete shall be carried out in accordance with I.S. 456-2000 and any other I.S. code is applicable.

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 1st Class :

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 2nd Class :

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 C.G.F.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.

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 not possible, the surface shall be 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.

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.

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 specialisation 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 from chalking when rubbed, even uniform and shall show no 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 it 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 day's 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.

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.

MATERIAL TEST LIST

The Contractors will have to take necessary material test as per I.S. code which is applicable, at their own cost for the following materials or any other material using in construction work periodically or as and when required by the Architects / Consulting Engineer.

The materials should be got tested in an approved Laboratory as per IS standard and test reports in duplicate should be submitted to the Architect's Office.

- | | | | | |
|----|---------------------------------|---|----|-------------------------------------|
| 1) | Sand | : | a) | Silt Content. |
| | | | b) | Bulking. |
| | | | c) | Particle size distribution. |
| | | | d) | Or as directed. |
| 2) | Stone aggregate | : | a) | Soft and deleterious material. |
| | | | b) | Particle size distribution. |
| 3) | Cement Concrete RCC mix design | : | a) | Slump. |
| | | | b) | Cube strength. |
| | | | c) | Or as per I.S. 456-2000 |
| 4) | Bricks | : | a) | Dimensions |
| | | | b) | Water absorption and efflorescence. |
| | | | c) | Compressive strength. |
| 5) | Timber | : | | Moisture. |
| 6) | Ceramic/Vitrified Floor Tiles : | | a) | Transverse strength. |
| | | | b) | Water absorption. |
| | | | c) | Abrasion test. |
| 7) | Steel | : | a) | Tensile |
| | | : | b) | Bend. |

Note: The Contractor will have to take necessary material test other than above test as per relevant I.S. code, if required and as directed by Architect / Owner.

MATERIAL TESTING

A chart showing the recommended time and quantity scheduled for conducting test on various building materials is given. Please ensure that tests are carried out according to the above guidelines. Contractor's rate should include for necessary expenditure for testing including transport of samples of following tests.

No	Material	Test	Test Procedure	Minimum Quantity	Frequency
1	Sand	a) Silt Content	Field	20 Cum	20 Cum or part thereof
		b) Bulking	Field	20 Cum	--- Do ---
		c) Particle size distribution	Field	40 Cum	Every 40 Cum required for RCC work.
2	Stone	a) Soft and Deleterious	IS - 2336 Part – II		As required.
		b) Particle size distribution	Field	45 Cum.	Every 45 Cum part thereof for RC work. For rest of work as desired.
3	Cement Concrete or RCC	Slump	Field		Once a day or as desired.
		Cube Strength	Field Laboratory /	20 Cum slab, beams and connected columns 5 Cum in columns	Every 20 Cum of a day's concrete. Every 5 Cum column concrete.
4	Steel	a) Tensile Strength	IS - 1529	20 tonnes	Every 20 tonnes or part.
		b) Bend Strength	---- Do ----	---- Do ----	---- Do ----
5	Lime	Chemical and Physical properties of lime.	IS - 6932	5 M.T.	10 M.T. or part thereof

No	Material	Test	Test Procedure	Minimum Quantity	Frequency
6	Bricks	Dimensions Water absorption Efflorescence compressive strength		Designation 100 75) 50) 1,00,000 35) --- Do --- 100-50,000 75) 50) 100,000 35)	Every 50,000 or part thereof. Every 100,000 or part thereof one test for source of 50,000 or part thereof. Two tests for 1 st lot of 1,00,000 and one test later for every 2,00,000 and part thereof.
7	Brick Tiles	Compressive Strength Efflorescence		50,000 50,000	For 50,000 or part. One test per Source.
8	Marble	Moisture absorption Mohs scale hardness	IS – 1124 – 1974 IS – 1706 – 1972	Rs.10,000/- Value	Rs. 10,000/- or part thereof. (Value)
9	Timber	Moisture	IS – 11215 – 1985	1 Cum.	Every one Cum and part.
10	Aluminium door or window fitting	Thickness of anodic coating.	IS – 5523 – 1969	Rs. 5,000/-	Rs. 10,000/- or part thereof.
11	Ceramic Tiles / Vitrified Tiles / Designer pre-cast Concrete Tiles and interlocking paver block	a) Transverse Strength b) Water Absorption c) Abrasion test	IS – 1237 --- Do --- --- Do ---	200 Tiles --- Do --- --- Do ---	2000 Tiles or part. --- Do --- --- Do ---

12	Flush Door	a) End Immersion	IS – 2207		Destructive tests No. of shutters.
		b) Knife		22 – 65 66 – 100 101 – 180	1 2 2
		c) Adhesion		181 – 300 301 – 500 501 – above	3 4 5

No	Material	Test	Test Procedure	Minimum Quantity	Frequency
13	Tarfelt Type-3 Grade - I	Conform to I.S. 1322 – 1970			One Test
14	Pig lead	I.S. 782 – 1978			One Test
15	R.C.C. design mix M-25	All test as per I.S.:456-2000	As directed	As per directed	As per directed

Note : The Contractor will have to take necessary material test other than above test as per I.S. code for above material or other than above material, if required and as directed by the Architect / Owner.

S P E C I F I C A T I O N S

P L U M B I N G W O R K S

1. GENERAL :

1.In case where the specifications given below are found wanting the latest I.S. specifications, shall hold good.

2. wherever references has been made to Indian Standard or any specifications, the same shall mean to refer to the latest specifications irrespective of any particular edition of such specifications being mentioned in the specifications below or schedule of Quantities.

11. WORKMANSHIP :

The workmanship shall be the best of its kind and shall conform to the specifications are below or Indian Standard specifications in every respect or latest trade practices and shall be subject to approval of the Architect/Bank. All materials and/or workmanship which in the opinion of the Architects is defective or unsuitable shall be removed immediately from the site and shall be substituted with proper materials and/ or workmanship forthwith.

111. MATERIALS :

General (a) All materials shall be best of their kind and shall conform to the latest Indian Standards.

(b) All materials shall be of approved materials quality as per samples and origins approved by the Architect/Bank.

(c) A set of specimen samples off all approved materials shall be kept at site as well as in the office of the Architects, cost of which is to be borne by contractor.

1. Cement : Cement shall comply with the latest specification Grade 53 or equivalent Ordinary Portland Cement IS : 12269 : 1987 : 1999. Fully partly set cement shall be rejected. One bag of cement shall weigh 50 Kgs. and shall be stored in pucca godown with raised floor and shall be water tight. The bags shall be stored in stacks of not more than 6 bags with sufficient clearance around to enable inspection and periodical counting. Cement shall be utilised only for the work for which it is allotted. All incidental charges sum as carriage, octroi, loading and unloading, storing, safe custody, watch and ward etc. shall be borne by the contractor.

2. M.S. Reinforcement : M.S. reinforcement shall be of mild steel and plain rounds conforms to the latest Indian Standard IS 800 – 2007 Code of Practice for Plain and Reinforced Concrete. The steel shall be free from pittings, loose rust, mill scales, paints, oil, grease etc. in case of steel being supplied by the Employer the removal of loose rust, mill scales, oil grease and paint etc. and other incidental charge such as carriage, octroi, loading, unloading, storing safe custody, watch and ward etc. shall be borne by the contractor.

3. Coarse aggregate : Coarse aggregate shall be of the best quality hard machine crushed stone approved by the architects, free from earth or any organic matter etc. suitably graded and washed as and when directed by the Architects and shall conform to Aggregate most of which is retained on 4.75 mm IS Sieve and contains only as much fine material as is permitted in IS 383 for various sizes and grading is known as coarse aggregate. Coarse aggregate shall be specified as stone aggregate, gravel or brick aggregate and it shall be obtained from approved/ authorized sources.

4. Coarse Sand : shall be natural pit sand, clean, sharp strong, angular and composed of hard siliceous materials. it shall be free from any harmful materials such as iron pyrites, coal mica shale or similar laminated materials, clay alkali, soft fragments, sea shale, organic impurities etc. It shall be obtained from quarries approved by the Architect. It

shall be washed at site before use in the work to the satisfaction of the Architects. Fineness modulus of sand conforming to IS 383 :82 shall not be less than 2.5.

5. Fine Sand : This shall be natural river sand clean, sharp and free from excessive deleterious matter. It shall be free from silt. Fineness modules shall not be less than 1.0.

6. Bricks : Bricks shall be local best quality brick available commercially of quality approved the Architects well burnt, sound, hard, square and with sharp arises and shall give a ringing sound when struck with a mallet and free from grit and shall not absorb water more than 20% of its weight after 24 hours immersion.

7. Paint : These shall be of standard manufacture, Asian, Nerolac, Berger, or equivalent conforming to the latest Indian Standards for various paints.

8. Water : Water shall be Municipal Water, clean and free from excessive salinity, impurities ingredients and other harmful matters, duly tested in an approved laboratory, declared suitable for construction purpose as approved by the Architects/Bank.

9. Sanitary Wares : All sanitary wares and fittings shall be Ist quality, white vitreous China as manufactured by M/s. E.I.D parry Ltd., Hindustan Sanitary Wares, 'CERA', 'Parry-Ware' or approved equivalent. All fire clay sinks and draining boards shall be of best quality of Saniline and shall have 40mm dia. waste.

10.Toilet Requisites :

(a) Mirrors shall be of 5.5 to 6mm thick glass of quality free from any defects. Mirrors shall have plywood backing and aluminum anodized channels angle frame Al round with key hole to wall with screw for hanging.

(b) Towel rails shall be of C.P. brass 600mm long pipe size 20mm dia of approved make.

(c)Pegs : Two number pegs chromium plated comprising of three hooks in a set which is to be collapsible type. these shall be fixed with C.P. brass screws.

- GI Pipes and Fittings : Heavy Grade B Class GI Pipe
- C.P. Brass Fittings : Shall be of brass with best quality chromium plating of Jacquar, Plumber, make or approved equivalent.
- Gun Metal Full Way Valve: :These shall be of gun metal fitted with wheel & shall be of gate type opening full way & of the size upto 50 mm. These shall generally conform to IS.778 & their approximate weights shall be as specified earlier. equivalent, conforming to IS: 778 – 1984.

15. Ball valves : Shall be brass with float of POLYTHENE/Copper as specified.

1. Manhole Cover and frames : Shall be of approved make confirming to IS:1726:1991

2. Pumps : Shall be of "CROMPTON" or 'KIRLOSKAR' or approved equivalent.

3. Testing of materials and works : As and when required by the Architects/Employer the contractor shall arrange to test the materials and/or portions of works at his own cost to prove their soundness and efficiency. If after tests any materials work or portions of

work are considered defective or unsound by the Architects/Employer the contractor shall remove the defective material from the site, pull down and re-execute the works at his own cost to the satisfaction of the Architect. To prove ,that the materials used are as specified, the contractor shall furnish to Architects /Employer with original vouchers on demand.

SECTION 1**SANITARY INSTALLATION AND PLUMBING****GENERAL REQUIREMENTS :**

- (a) All sanitary appliances including Sanitary fittings, fixtures, toilets requisites, shall be of size, make and design as specified in item of work as specified in the item of work as per sample approved by the Architect/Employer.
- (b) All exposed GI pipes and fittings shall be painted with approved quality paint and shade as specified.
- (c) All sanitary and plumbing work shall be carried out through licensed plumbers.
- (d) On completion of work, the site shall be cleaned and all rubbish disposed off as directed by as Architects/Employer.
- (e) All sanitary fittings such as water closet pans (pedestal or squatting pattern), Urinals (basin, stall or squatting pattern) partitions for closets and urinals, flush pipes, brackets, lavatory basins, baths, sinks, soil and vent pipes etc. and fittings holders for toilet paper glass selves and other fittings together with the fixing of the same shall be enumerated separately or in combination under relevant items of work as described in schedule of quantities.

1. SANITARY WARES

1. European type W.C. pan and Cistern : Shall be of white vitreous China 1st quality closet 'P' or 'S' trap coupled with fittings, brackets complete in all respects. The W.C. pan cistern shall be free from cracks, blisters and shall have smooth surfaces.

Fixing W.C. pan shall be fixed to floor with C.P. brass screws or by means of 75mm long 6.5mm dia counter sunk bolts and nuts embedded in floor concrete. The base of the pedestal of the pan shall squarely rest on the finished floor. Any gap between the finished floor and the pedestal shall be filled with white mastic mixed with pigment to match the shade of the floor as directed by the Architect/ Employer following measures shall be adopted for fixing the W.C. pan.

- (a) The central axis of the pan shall be perpendicular to the finished face of wall on flushing cistern is fixed.
- (b) The outlet of the pan shall be centrally placed in the socket of PVC pipe with a uniform space around for jointing shall be done with yarn linseed oil white lead one and water proofing compound and made water tight.
- (c) The cistern between centre line of cutter of W.C and finished wall shall be so adjusted as to rest squarely against the finished wall face.

Seat and lid : shall be of solid with same Branch make as per sanitary fitting and fitting exactly on the rim of the W.C. pan with C.P. brass hinges rubber buffers and CP brass nuts.

Angle valve : shall be of 15mm dia C.P. brass with inlet connections of required length with unions and C.P. brass cap

The connection between angle valve and supply line laid in chase shall be made in a manner so that the union is flush with finished face of the wall and so threaded that portion of the angle valve or supply is visible.

Measurements : shall be by numbers.

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

2. Indian type W.C. pan : shall be Orissa pattern with integrated foot rests with 'P' or 'S' trap of 1st quality 'PARRY', Hindware, RAK, Sanitary Wares or approved equivalent.

Fixing ; The W.C. pan shall be laid in floor slopped towards the pan in a workmanlike manner care being taken not to damage the pan in the process fixing. If damaged in any way, it shall be replaced at no cost to Employer. The pan shall be fixed on a proper base of cement concrete 1:2:4 mix 9 1 cement ;2 coarse sand :4 stone ballast 20mm nominal size) taking care that cushion is uniform and even without having any hollows between the concrete base and pan. Joint between the pan and finished floor shall be neatly done and no hair cracks shall be visible. Joint between the outlet of pan and HCL trap shall be made with neat cement, yarn, linseed oil, white lead and water proofing compound and made leak proof.

Flushing Cistern : shall be caste iron 'NOMOS' with chain and pull. Cistern shall have mosquito proof cover ball valve with Polythene float, level and siphon complete with necessary union etc. for inlet and overflow connections. Cistern shall be fixed on rolled steel cantilever brackets, which shall be firmly embedded in the wall by making holes of required sizes. Brackets shall be grouted in holes with cement mortar 1:2 (1 cement : 2 fine sand) the wall used for making holes shall be made good to original conditions.

Overflow Pipes : Cistern shall be provided with 20mm dia galvanized iron over flow pipes with fittings which shall terminate 1.0mm above floor level. Open end of the overflow pipes should have mosquito proof coupling design with 0.5mm dia. perforation.

Lead connections : Cistern shall be connected with a P.V.C. connection pipe of 450mm length with brass unions at the ends. One end shall be connected in cistern inlet and the to distribution line with a stop cock in between for control of flow.

Stop Cock : shall be of C.P. brass of Jacquar, or equivalent.

Painting : Inside of cistern and fittings shall be painted with 2 coats of anti-corrosive paint and outside of the cistern. brackets, exposed portions of overflow and flush pipe shall be painted with 2 coats of white synthetic enamel paint of approved manufacture over a priming coat of red lead.

Measurements : shall be by numbers

Rates : shall include the cost of all materials and labour involved in all the operations as described above.

Mixing fittings : shall be C.P. brass with modern head for hot and cold for spray and with diverters. Jacuzzi, make or equivalent

Angle valve : shall be of 15mm dia. C.P. brass with 15mm dia C.P. copper supply pipe of 300mm length with nuts and washers.

The connection between angle valve and supply line laid in chase shall be made in a manner so that the union is flush with finished face of the wall no threaded portion of the angle valve or supply line is visible.

Measurements : shall be by numbers.

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

4. Urinals : These shall be of the approved make and shall consist of the following :

- a) Vitreous Chinaware urinal stall of 11p type as specified in the material schedule.
- b) 5 litre capacity C.I automatic flushing cistern with all accessories.
- c) 32mm Chromium plated brass waste coupling.
- d) 12 mm dia C.P. brass, flush pipe.
- e) Suitable supporting arrangement using Rawl plugs with C.P. brass screws used for fixing the urinal .
- f) All other necessary work for satisfactory working.

Auto Cistern : shall be white vitreous China of 1st quality of specified capacity with non ferrous metal fittings and inlet valve, complete with brackets, screws etc.

Angle valve : shall be of 15mm C.P. brass with inlet connections of required length with unions and C.P. brass cap.

Flush pipe : shall be of C.P. brass 32 mm dia main with 15mm dia distribution pipes of required length complete with C.P. brass clamps, tees, crosses, bends with unions spreaders etc. of approved make.

Bottle trap : shall be 40 mm cast C.P. brass heavy type with wall discharge pipe of required length with flange. Discharge pipe shall be connected to G.I. waste pipe in chase in a manner so that the flange is flush with finished face of wall.

Waste : shall be 40 mm dia C.P. brass dome type waste.

Painting : The brackets shall be painted with 2 coats of white synthetic enamel paint of approved manufacture over and including a priming coat of red lead.

Measurements : shall be as per urinal set for different ranges as specified in the Schedule of Quantities.

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

5. Channel : shall be of white, glazed. The channel shall be free from cracks, crazes etc.

Fixing : channel shall be laid on a smooth bed of cement concrete taking care of cushion is uniform and even without having any hollows between the concrete base and channel shall be laid to required slop towards the outlet point.

Measurements : shall be per running metre.

Rates : shall include the cost of all materials and labour involved in all the operations described above.

6. Urinal Partition : shall be large size of white vitreous China 1st quality. These shall free from any cracks, crazes etc. and shall have smooth surface.

Fixing : These shall be fixed to wall with coach screws or as directed.

Measurements : shall be by numbers.

Rates : shall include cost of all materials. labour involved in all the operations describe above.

7. Stainless Steel sink and draining Board : shall be 'ORIENT' or approved equivalent make pressed stainless steel 2mm thick sheets and shall have 32 dia outlet with grating. These shall be connected to 32mm dia C.P. brass 'P' or bottle traps.

Fixing : These shall be supported on C.I. cantilever brackets or placed on wooden or marble counter. The joint between the masonry or wood work shall be filled with mastic filler to make it absolutely water tight. the draining board shall be sloped towards the sink in order to drain out all the water in the sink.

Mixing fitting : shall be C.P. brass comprising of 2 Nos. hot and cold mixing fittings with swivel spout, a pair of 15mm C.P. brass angle valves with inlet tubes and C.P. brass cap.

Bottle trap : same as described under item No. 4.

Angle valve : same as described under item No. 1.

Rates : shall include cost of labour and materials mentioned in Schedule of Quantities.

Measurement : shall be by numbers.

Mixing fittings : shall be 15mm C.P. brass comprising of 2 No. C.P. brass concealed stop cocks (one hot and one cold) one No. five way diverter, one no. C.P. brass heavy type spout with flange, including one No. hook for hand shower and including cost of telephone shower with C.P. flexible pipe of required length for telephonic shower make Jacuzzi, Plumber or equivalent.

Grab rail : shall be C.P. brass 20mm x 450mm with C.P. brass concealed brackets.

'P' or 'S' trap : shall be 40mm dia C.P. brass heavy of approved make.

Waste : shall be 40mm dia C.P. brass with solid rubber plug and C.P. brass ball chain.

Overflow : shall be 25mm dia C.P. brass.

Measurements : shall be by numbers.

II. TOILET REQUISITES :

1.Mirror : shall be 5.5 to 6mm thick plate glass of best quality. These shall be free from bubbles, ripples or any other defects. The glass shall be uniform silver plated at the back by Silvering shall have an uniform protective coating of red lead paint. These shall be 600 x 450mm in size. These shall have aluminum anodized channel/angle frame all-round with keyhole to wall with screw for hanging as directed by the Architects/Employer.

Backing : The mirror shall have plywood backing of 6mm thickness, protecting alround conforming to the size of wooden frame.

Fixing : The mirror and its backing shall be fixed on wall face with wooden cleats, with C.P. brass screws and washers.

Measurements : shall be by numbers.

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

2.Towel rail : shall be of C.P. brass 600 mm long, 20 mm dia with 2 C.P. brass brackets.

Fixing : Brackets shall be fixed to wall by means of C.P. brass screws to wooden plugs on rawl plugs, embedded in the wall or as directed by the Architects/Employer.

Measurements : shall be by numbers.

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

3.Pegs : shall be C.P. brass collapsible of 3 hooks in a set. These shall be fixed with chromium plated brass screws at the back of toilets, bath and kitchen doors.

Fixing : shall be same as for item No. 2.

Measurements : shall be by numbers.

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

4.Toilet paper holders : shall be 150 x 150mm white vitreous china recess type. These shall be of Ist quality free from cracks and crazes etc.

Fixing : shall be fitted in masonry on 80mm thick cushion of cement concrete 1:2:4 and jointing to the masonry with white cement or with approved material to match with dado work.

Measurements : shall be by numbers.

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

Any defects revealed by the tests shall be made good and the tests repeated until a satisfactory result is obtained.

Rate : shall include cost of labour and material in the above operations and cutting and making good the walls, RCC, work, chases etc. including encasing pipes with 50mm thick cement concrete 1:2:4 wherever required.

2. Embedding pipes in masonry

Pipes shall be embedded in masonry during construction of the building. A hole of size upto 20.20cm as directed shall be kept in the masonry. The pipes shall be centrally placed in the hole and shall be fixed by filling the space around pipe with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 20mm nominal size). Where the wall thickness is 20cm the cement concrete shall be made flush with the masonry surface on both sides and the surface roughened with wire brushes to receive plaster. Where the wall thickness of wall is more than 20cm the other side shall be covered with the same class of brick work of stone masonry as provided in the wall.

Measurements : the embedment shall be measured in running metres. Length shall be measured correct to a cm.

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

3. Floor traps shall be of self cleansing design 'P' or 'S' type with minimum 50mm seal of approved make with C.P. brass gratings.

Fixing : The traps shall be placed in position and encased around with 150mm thick concrete 1:2:4 wherever necessary vertical pieces with sockets shall be joined to traps to accommodate C.P. brass grating at floor level.

Measurements : shall be by numbers

Rate : shall include cost of labour and materials involved in the operation described above.

IV WATER SUPPLY

G.I. Pipe Fittings

Galvanized Iron pipes and fittings : The pipes shall be galvanized mild steel medium /heavy as specified in the schedule of quantities of Indian Tube Co. or BST or ITC conforming to IS 1239:1968. All pipes shall be electric resistance welded screwed with taper, threads and sockets with parallel threads. (Threads shall conform to IS 554:1964). The pipes and sockets shall be cleanly finished, well galvanized in and out and free from cracks, surface flaws, laminations and other defects. All screws threads shall be clean and well cut. The ends shall be cut cleanly and square with axis of the tube.

The fittings shall be 'R'/KS brand and comply with all the requirements that of pipes. The fittings shall be designated by the respective nominal bores of the pipes for which they are intended.

The standard weight and thickness of pipes shall be as shown in the following table.

Nominal weight of bore in mm	Series/class		Wall thickness		Nominal weight of		Nominal Kg/m
	galvanized tubes Kg/m		mm		black	tubes	
15	Medium =	M	2.65	1.22		1.274	
	Heavy =	H	3.25	1.45		1.504	
20		M	2.65	1.58		1.642	
		H	3.25	1.90		1.953	
25		M	3.25	2.44		1.825	
		H	4.05	2.97		3.053	
32		M	3.25	3.14		3.247	
		H	4.05	3.84		3.937	
40		M	3.25	3.61		3.731	
		H	4.05	4.43		4.545	
50		M	3.65	5.10		5.236	
		H	4.50	6.17		6.329	
65		M	3.65	6.51		6.715	
		H	4.65	7.90		8.065	
80		M	4.05	8.47		8.696	
		H	4.85	10.10		10.309	
100		M	4.50	12.10		12.658	
		H	5.40	14.40		15.085	
150		M	4.85	19.20		20.000	
		H	5.40	21.20		22.222	

Cutting, laying and jointing of pipes and fittings :

Where pipes have to be cut or rethreaded, ends, shall be carefully filed out so that no obstructions to bore is offered. The end of the pipes shall then be threaded conforming to requirements of IS 5541955 with pipes dies and tapes carefully in such a manner as will not result in slackness of joints when two pieces are screwed together. the pipes shall be cleaned and cleared of all foreign matters before being laid. A pipes and fittings shall be properly joined to make the joints completely water tight and all pipes kept free from dust and during fixing. Burr shall be removed from the joints after screwing. Pipes passing through wall or floor shall be provided with MS tube sleeves when directed by the Architects to de so.

Clamps and Holder Bats :

All pipes and fittings shall be fixed truly vertical and horizontal unless unavoidable. the pipes shall be fixed to walls with standard pattern holder but clamps of required shape and size so as to fit tightly on the pipes when tightened with screwed bolts. These clamps shall be embedded in brick work in cement mortar 1:3 (1 cement : 3 coarse sand) and shall be spaced at regular intervals in straight lengths as shown in the table given below :

TABLE

Size of pipe mm		Lengths	
Horizontal runs	Vertical runs	metres	metres
15		2.00	2.50
20 to 32		2.50	3.00
40 to 50		3.00	3.50
65 to 100		3.50	5.00

The clamps shall be fixed at shorter lengths nears the fittings as directed by the Architects.

All pipes shall be provided with unions at the location of fixing valves, pumps or any other fixed equipment, so as easy detachment.

Testing : After laying and jointing the pipes and fittings shall be inspected under working conditions of pressure and flow. Any joint found leaking shall be redone and all leaking pipes removed and replaced without extra cost. The pipes shall be slowly and carefully charged with water so that all air is expelled from the lines. The draw of taps

and stops cocks shall then be plunged and hydraulic pressure of 6 Kg/Sqcm shall be applied, gradually. Pressure gauge shall be accurate and recalibrated before the test. The test pump having been stopped, the pressure shall be maintain itself without measurable loss for atleast half an hour.

Cleaning and Disinfection of supply system : All water lines shall be thoroughly and efficiency disinfected before being taken into use and also after every major repair. The method for disinfection shall be subject to the approval of the Architects.

Measurements : The lengths shall be measured in running metre correct to a cm for the finished works, which shall include G.I. pipe and G.I. fittings such as bends, tee, elbows, reducers, crosses, plugs, sockets, nipples and nuts etc. but exclude brass or gunmetal taps (cocks), valves, lead connections and shower rose. The measurements shall be taken separately for internal and external work. The pipes and fittings shall be classified according to their diameters, method of jointing and fixing substance, quality and finish. The diameter shall be nominal diameter of the internal bore.

Rate :

Internal work : The rate for internal work shall include the cost of labour and material involved in all the operations described above. The rate shall include the cost of cutting holes in walls and floors and making good the same.

This shall not however include, concealed pipe work in which case cutting of chase and making good the same or painting of exposed pipes, shall be paid separately unless specified otherwise in the schedule of quantities.

External work : The rate for external work shall include cost of labour and materials involved in all the operations described above. The rate shall include excavation in trenches but however painting of pipes with anticorrosive bitumastic paint and sand filling around the pipes, unless specified otherwise in the schedule of quantities, will be paid separately.

Rate : shall include cost of labour and materials involved the above operations and described in the Schedule of Quantities.

2. Cutting chases in masonry walls :

The chases upto 7.5 x 7.5 cm shall be made in the walls for housing G.I. pipes etc. These shall be provided in correct positions as shown in the drawings or directed by the Architects. Chases shall be made by chiseling out the chases, shall be filled with cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or cement mortar 1:4 (1 cement : 4 coarse sand) as may be specified and made flush with the masonry surface. The concrete surface shall be roughened with wire brush to provide a key for plastering.

Measurements : Chases shall be measured in running metre. Length shall be measured correct to a cm.

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

3. Non return valves and fully way valves : shall be heavy quality of leader make.

Measurements : shall be by numbers.

Rate : shall include cost of supplying and labour for fixing in position.

4. Making water connection : A pit of suitable dimension shall be dug where the connection is to be made with ring main and removed upto 150mm below the main. The main shall be disconnected by operating the nearest sluice valve on the main. The main shall be drilled and slopped at 45° to the vertical and ferrule of required size shall be screwed in. The ferrule shall be fitted in a manner so that no portion of projection of the shank shall be left projecting within the main into which it is fitted. Ferrule shall be nonferrous with a C.I. bell mouth cover and shall be of nominal bore as required.

SOME IMPORTANT MATERIALS FOR WHICH SAMPLE ARE TO BE KEPT

1. Hardware Aluminum door & window fittings
2. Wood
3. Aluminum section
4. Marble Granite
5. Floor tiles/ceramic tiles/glazed tiles
6. GI pipe and fittings
7. C.P. fittings
8. PVC pipe

SANITARY AND PLUMBING WORKS

S.No	Materials	Brand Name
1	VITREOUS CHINA AND FIRECLAY	SANITARYWARE Parryware HINDUSTAN CERA, RAK,
3	STAINLESS STEEL SINKS	Nirali or equivalent
4	C.P. FITTINGS & ACCESSORIES	Jacqaur, or equivalent
5	C.P. WASTE SPREADERS URINAL FLUSH PIPES	DEVELOP ORIENT
6	SOIL. WASTE & RAIN WATER PIPES AND FITTINGS SAND CAST	VARUNA B.C. RIF, Kasta
7	CPVC Pipes	NOVEON, KASTA, VECTOS OR EQ
9	GUN METAL VALVES (FULLWAY CHECK AND GLOBE VALVES)	LEADER, SANT
10	C.I. VALVES (FULLWAY CHECK AND GLOBE VALVES)	KIRLOSKAR, LEADER, SANT
11	PVC Pipe	Kissan, Kastha, Swastik or EQ
12	Cement	ISI Marked Ultratech, ACC, Mycem, Heidelberg
13	MS Steel	TATA, Goyal, or EQ

Note : Under the head of specifications, Plumbing work, Sanitary installation and Plumbing, External sewerage, Storm water drain, External water supply, unless otherwise specified the use of material shall be as per the list of approved material.

TECHNICAL SPECIFICATION FOR

ELECTRICAL INSTALLATION WORKS

1.0 GENERAL : All provisions of the "General Conditions" and "Supplementary General Conditions" shall form a part of this section.

1.1 WORKS INCLUDED IN THIS SECTION

- a) 230V single phase, 2 wire lighting & power distribution system complete.
- b) 415V three phase, four wire lighting and power distribution system complete.
- c) An adequate equipment grounding system.
- d) Conduit, pull wire and outlet boxes for Telephone system.
- e) Fixing of control panels for light and power distribution
- f) Fixing of general lighting and fans.
- g) Laying of cables.

1.2 WORK NOT INCLUDED IN THIS SECTION

- a) Neon Signs/Display signs
- b) Special lighting controls, if any.

1.3 CODE REQUIREMENTS : All work shall be done in accordance with the Institute of Electrical Engineers/I.S.S. code amended upto date/ Indian Electricity Rules.

2.0 COOPERATION WITH OTHER TRADES : Electrical outlets and equipments shall be furnished, installed and located in such a manner as to avoid interference with the work of other trades.

3.0 MATERIALS : All materials to be used in this work be new and bear the Clients & Architects level of approval.

4.0 RECEPTACLES : All 250V receptacles shall be 2 wire three pin 5 amp flush mounted of flush type of approved make. For power loads, the flush type 6 pin socket shall of 15 amp. rating and be also of approved make.

5.0 MODULAR SWITCHES : All flush type Modular switches shall be totally enclosed type of 5 amp rating for upto four light outlets and 15amp. rating for more than four light outlets. being controlled by one switch. These shall be of approved make for light loads. For power loads, the flush type switches shall be of 15 amp rating and be of approved make.

5.1 COVER PLATE : Modular type clip on

5.2 LOCATION : The drawings indicate diagrammatically various outlets and equipments. In the event of things in the indicated locations of equipment or fixture being necessary due to developed conditions in the building construction or rearrangement of furnishing, such changes shall be made without any extra cost by the contractor. Bottom of switch Boxes for (light & fan point) shall be located at 1200 mm above from finished floor level. Bottom of the wall socket outlet (5 Amps 3 pin and 15 Amp 6 pin) Boxes shall be erected approximately 50 mm above the skirting level unless otherwise specified. Any changes in level of those points such as kitchen counter, geyser points, shall be carried out without any additional charges.

6.0 POSITION OF LIGHTINGS & DISTRIBUTION BOARDS & SWITCH GEARS :

- a) The recommended position of the lighting points, control switches, distribution boards and switch gears, as shown on the layout drawings, will be adhered to as far as practicable.
- b) Should there be any discrepancy or incomplete description, ambiguity or omission in the drawings and other documents, whether original or supplementary, forming the contract, the contractor shall immediately on discovering the same, draw attention of the Architects and Clients.
- c) Prior to the installation of lighting, fan and plug points and the distribution boards switches etc. final position shall be ascertained by the contractors with the Architects & Clients representative.

7.0 PAINTING AND MARKING :

All exposed steel work not actually embedded in building construction (viz. conduits, junction boxes, switch boards etc.) will be painted to match the existing shades of walls as instructed. This work will be done by the contractor without any extra charge.

The contractor shall satisfy the Client and Architects that he has trained labour for making joints of aluminum or Copper cable/wire etc.

Wherever recessed fittings are required to be provided the Electrical Contractor shall be responsible for informing the Building Contractor to keep necessary recesses in the slab.

7.1 List of approved makes and manufacture of electrical materials is attached herewith only such materials as are on this list, shall be used.

8.0 SUPPLY OF MATERIAL: The supply given will be brought by the contractor at their cost if necessary.

9.0 CONCEALED WIRING INSTALLATIONS

9.1 CONDUITS : These shall be of 16 SWG thick upto 32mm dia and 14 SWG thick for 40mm and above dia Mild steel, stove enameled having perfectly circular tubing and capable of being cleaned and tight fitting joints. The minimum size of conduit to be used shall be 20mm dia.

9.2 ERECTION : Conduits shall be laid before casting in the upper portion of a slab or otherwise, as may be instructed or in accordance with approved drawings, so as to

conceal the entire run of conduits and ceiling outlet boxes. Vertical drops shall be buried on columns or walls. Wherever necessary, chases will be cut by the contractor with the prior written orders of the site Engineer to sufficient depth to allow full thickness of plaster over conduits. Width of the chases will be made to accommodate the required number of conduits. The chase will be filled with cement coated sand mortar (1:4) and properly cured by watering. If a chase is cut in an already finished surface, the contractor shall fill the chase and finish it to match the existing finish without any extra cost. Contractor should not cut any iron bars to fix conduits. When the conduit is to be embedded in a concrete member, it shall be adequately tied to the reinforcement to prevent displacement during casting. Saddles must be provided at every 600mm.

Suitable expansion joint fitting of approved make and design shall be provided at all the points where the conduit crosses any expansion joint in the building.

9.3 USE OF BENDS : These shall be of 16 SWG. As far as possible, the conduit system shall be so laid out that it will obviate the use of tees, elbows and sharp bends. No length of conduit shall have more than the equivalent of two quarter bends from inlet to outlet.

9.4 CROSS SECTION :The conduits shall be of ample sectional area to facilitate the drawings of cables. The size of wires and conduits table is given in 9.15 (9).

9.5 CEILING OUTLET BOXES :Outlet boxes shall be of C.I. and so installed as to maintain continuity throughout. These shall be so protected at the time of laying that no mortar finds its way inside during concrete casting or plastering. For fluorescent fittings, the outlet boxes shall be provided one 12" off centre for a 4 ft. fitting and 6" off centre for a 2 ft. fitting.

9.6 DRAW BOXES :M.S. draw boxes of ample dimensions shall be provided at convenient points on walls to facilitate pulling of long runs of wire. They will be completely concealed with bakelite hylam covers flush with plaster work. These boxes will be as few as possible and located where found suitable by the Consultant/Client. All the M.S. boxes used for housing switches, plugs, drawing of wires etc. shall be of 16 SWG.

9.7 SWITCH BOXES :M.S. boxes of required sizes shall be provided to house fan regulators, switches and plug sockets. These shall be attached to conduits by means of check nuts on other side of their walls. These shall be completely concealed leaving edges flush with wall surfaces. These boxes shall be of 16 SWG.

9.8 CLEANING OF CONDUIT RUNS ;The entire conduit system including outlets and boxes shall be thoroughly cleaned after completion of erection and before drawing in cables.

9.9 PROTECTION :To safeguard against filling up with the plaster etc. all the outlet boxes and switch boxes will have to be provided with temporary covers and plug within the tendered cost which shall be replaced by sheet covers as required.

9.10 PAINTING :Before erection, the conduit shall be painted at such places where the pipe had been damaged due to vice or wrench grip, Threaded portion of pipe ends .

9.11 FAN REGULATOR :

Shall be Modular stepped type two module electronic regulator.

9.12 LAYING OF CONDUIT ONLY FOR TELEPHONE OR OTHER DUMMY CONDUITS :

The conduit for telephone system shall be the same as conduit, for other work and as specified before. The minimum size shall be 20mm dia. junction boxes shall be provided as distance not exceeding 10m. The whole work shall be done in cooperation with the telephone authorities and the contractor must make such modifications as the company desires in consultation with telephone department. The same will apply to any other dummy conduit. Measurement will be taken of the actual run of conduit including accessories complete.

9.13 WALL SOCKETS : Wall sockets will be of the following type :

- a) For light plug point 5 amps. capacity 3 pin type Modular .
- b) For power plug point 15 amps. capacity 6 pin type Modular.

The rate for above will be included in the quoted rate for point wiring etc.

The quoted rate shall also include earthing the third pin with 14/16 S.W.G. copper wire as given in Bill of Quantity.

9.14 WIRES AND CABLES :

- a) All wire/cables shall have been manufactured in accordance with the latest I.S. specifications amended upto date. The PVC insulated copper conductor cable/wire shall be of 660/1100 volt grade.
- b) Twin flexible cables used for pendants shall have cross sectional area of 1.5 to 2.5 sqmm Multi-strand PVC insulated copper conductor, or as specified or large and be insulated in accordance with relevant I.S. specification amended upto date.

9.15 POINT WIRING : The point wiring shall be carried out in the under mentioned manner each of which will conform to the given specifications.

- 1) In concealed/surface conduit system including providing supply and fixing of conduit, bends junction boxes P.V.C./Rubber bushes check nuts etc.
- 2) Looping system will be followed throughout including supply and drawing of required sizes of wire without damaging the same.
- 3) All flush type accessories will be used.
- 4) The point will be complete with conduit including accessories and wires, necessary junction outlet and switch boxes, connections and ceiling roses, which boxes and flush plates, necessary earthing connections etc., as required.
- 5) The installation will generally be carried out in conformity with the I.S.I. Code, Indian Electricity rules and the Institution of Engineering (London) briefly called I.E.E. Rules, where the specification differs these specifications will prevail.
- 6) For the purpose of determining the load per circuit, the following rating of points shall be assumed :

- i) Twin light point 80 watts.
- ii) Single light point 40 watts.
- iii) Convenience light plug points 100 watts.
- iv) Ceiling fan points 60 watts.
- v) Exhaust fan points 12" 60 watts.
- vi) Power plug points 1000 watts.

The convenience plug points shall be complete with 3 pin 5 amps socket enclosed in M.S.box with the controlling switch as required and the third pin shall be earthed as indicated earlier.

The ceiling fan point shall be complete with a provision in the switch box for mounting the regulators. The ceiling fan/exhaust fan and its regulator shall be earthed. The point shall be complete as above.

Wiring for power plugs shall be as mentioned in the schedule of quantities. Each circuit shall have not more than two power plugs and the plugs shall be earthed as indicated earlier. The point shall be complete with a 6 pin 15 amps. plug socket & 15amps Modular switch socket mounted on M.S. Box Modular Box.

7) Measurement of sub main wiring : The length of submain wiring or any other type of wiring on linear basis shall include all lengths from end to end of conduit, exclusive of inter connections inside the switch board/D.B. etc.

8) Not more than Ten light, fan, light plug socket outlet points shall be grouped on one lighting circuit. The load per circuit shall not exceed 800 watts.

10.0 EARTHING

Each earth station shall consist of earth tape/wire connected to an independent plate both having conductivity of not less than 100% international standard. The section of tape/wire shall be fixed in an approved manner to walls or columns by means of copper claps at approximately 600mm centres. All electrical apparatus, cable boxes, & health/armour clamps shall be connected to main bar by means of branch earth connections of appropriate sizes. All joints between main bar and branch bars shall have the lapping surface properly tinned to prevent oxidation. The joint shall be riveted and swatted. All G.I. pipes used in the earthing shall be of class B.

All manhole of brick masonry 300mm x 300mm x 300mm wide to surround pipe shall be provided over the pit for inspection. All bolted removable link connecting main bar outside the pit portion leading to the plate shall be accommodated in this manhole for testing.

All conduit runs, metal clad equipments such as DBs main switches, fan regulator plugs boxes metallic fittings, etc. Shall have effectively earthing by using appropriate size of copper wire as specified to comply with the requirement of the ISS/Indian Electricity Rules or as specified under each individual item.

NOT withstanding the above, it must be ensured by the contractor that the resistance to earth does not exists the limited values imposed by the local Electrical Inspector or ISS whichever is lower. The earthing shall be as per ISS 3043 amended upto date.

11.0 DRAWINGS

The contractor shall submit three, complete sets of shop/fabrication drawings for approval to the client within a period of 20 days from the date of award of work without any extra charges.

The contractor shall also submit one complete set of originals and further four copies of layout drawings to the Client after completion of the work.

These drawings must give the following information :

- (1) Runs of conduit, diameter of conduit, numbers of wires contained and size of wire for point wiring, mains and sub mains etc.
- (2) Locations of all DBs, main switches, junction and outlet boxes and point switcher.
- (3) Complete schematic diagram of the installation.

The drawings will be prepared and submitted by the contractor without any extra charge and it should be submitted within 30 days from the date of virtual completion of the project/work.

12.0 COMPLETION TESTS

The installation with fittings complete shall satisfactorily pass the following tests before current is switched on : a) All lamps and appliances having been connected and with all switches 'OFF' a pressure not less than twice the working pressure (on subject to a limit of 500 volt) shall be allied and the insulation resistance must not be less than 50 meu.ohms divided by the number of points.

b) With all lamps and appliances removed from the point and all switches 'ON' is similar test between poles shall satisfy the above requirement.

c) As soon as the conduit in slab/screed is fixed. The contractor shall arrange to give the earth continuity test to ensure that the conduit or lead sheathing is electrically continuous through out and connected to earth.

d) To ensure that all single pole switches are on the live side of the apparatus they control.

The contractor shall notify in writing to the client and Architects about the completion of the work. Within 30 days form the date of this notification, the client and Architects shall send their representative to remain present at the time of carrying out of the tests by the Contractor. The contractor will fix up this date in consultation of Client/Architect for such tests.

Should the above test not comply with the limits as laid down in I.E.E. rules/Indian Electricity Rules the contractor shall rectify the faults at this own cost until the required results are obtained.

The contractor shall be responsible for providing the necessary instruments and subsidiary earth for carrying out the tests.

The above test shall be carried out by the contractor without any extra charges.

13.0 LIGHTING DISTRIBUTION BOARDS (M.C.B. DB FACTORY FABRICATED)

All the distribution boards shall be factory manufactured of approved brand only. These shall be complete with necessary supporting structures, copper bus bars neutral link and removable hinged cover. The miniature circuit breakers shall be with notified operating curves and be capable of clearing a fault of 9KA. The miniature circuit breakers to be used to control lighting circuits shall have a tripping characteristic of 45 seconds at 150% full load current and those for power point circuits of 5.0 seconds at 700% full load current. The miniature circuit breakers shall be rated for the ambient temperature prevailing at site and shall have the trip devices correctly calibrated. All these M.C.Bs shall be factory tested. The distribution boards shall be of 18.G thick CRCA sheet.

14. L.T. UNDERGROUND CABLE

Cables should be steel tape armored P.V.C. insulated conforming to the quality as specified in the schedule of work. All joints of cables should be in joint boxes and filling in of the compound shall be done as per I.S. specifications using the best quality materials. All cables, accessories and other material should conform to I.S. specification. The jointing work should be carried out by a competent authorised cable jointer.

15. TRENCH

Trenches shall not be less than 35 cms wide and 75 cm below ground level for cables upto 1.1 KV. Wherever necessary suitable propping and shoring may done to avoid caving of the adjoining trench walls. Where the cables cross other service lines adequate protection should be taken to prevent accidental exposure and/or damage to the cables.

16. SPACING BETWEEN CABLES

Where more than one cable is laid in the same trench the actual space between the cables should normally be 15cm apart leaving a clear distance of 15cm from the cable and the trench walls. The gap between two layers shall be minimum 20 cm.

17.0 LAYING OF CABLES

Before the cables are laid, a layer of 10cms sand is provided for purposes of cushioning. The cables after being uncoiled and laid into the trench from the rollers should be drawn in straight lengths. After the cable is laid, it is to be covered with another layer of sand of about 15cm in depth, and the top surface to be suitably levelled to receive the cable covers. These covers shall be of bricks and laid in a manner to overlap the cables on either sides by at least 5cm. Cable markers of G.I. shall be provided at ground level after being suitably embedded in concrete blocks of 20cm x 20cm x 20cm and spaced at a distance of about 30m from centre to centre and at every change in the direction. Cables may also be laid in their formation in the same trench. In this case also after the first 10cms sand cushion, the first tier of cable is laid and sand tier. After this the second cable is laid and process repeated the top most tier being at least 45cm below the ground level. The cable shall be suitably covered with bricks.

When laying the cables, care should be taken to see that the P.V.C. insulated cables are bent or straightened slowly and sharp radii avoided. The minimum safe bending radius

for single core cables is 20 diameters and for multicore cables 15 diameters and for armoured cables 12 diameters, the diameter being the overall diameter of the cable. Where the cables are required to cross roads this should be normally taken through G.I. Pipes.

Cables laid inside the building should be properly protected and be carried either in ducts with suitable clamps, brackets or cable trays.

Cable entering or leaving the building's should be taken through G.I. pipes as indicated in B.O.O. These pipes/sleeves shall be properly sealed after pulling the cables for preventing the water from entering inside the building as per directions of Engineer in Charge.

LIST OF APPROVED MAKE OF MATERIAL

S.NO	LIST OF MATERIALS	SPECIFICATIONS
1	Switch fuse unit (HRC type) with HRC fuses	Larsen and Tubro , Siemens, English Electric,
2	MCB and MCB DB's	Legrand,Schneider,Siemens, and ABB (10 KA,fault level)
3	PVC insulated aluminum/copper (1.1 KV XLPE)	Cable corp. of India conductor armoured cables, Incab upto 1100 V. Grade , Finolex, Havels.
4	1100 V-G Node Copper conductor PVC (FRL) wire insulated	Finolex, RR, Havells Muti strand wires.
5	PVC/ M.S. conduit (ISI marked)	B.E.C., AKG,NIC
6	Telephone wires (0.6mm)	D-link, Delton, Finolex
8	Fabrication of main, L.T. panel (main board)	To be fabricated locally as per Technical Specifications & schedule of Quantities.
9	E.L.C.B.	Siemens MDS, English Electric(GEC Alsthom), Schneider
10	CTs	Kappa Automatic Electric MDC (AARCEE Industries)
11	Selector switches	Larsen and Tubro (Slezer) Kaycee
12	Volt/Amp. meters (96 Sq.mm)	Automatic Electric
13	Indicating Lights	Concord Siemens L & T
14	Telephone Socket (3 pin)	Anchor ,Roma, Legrand ,MK, Crabtree
15	Lugs	Dowells
16	Change over switch	H.H. Elecon/ Havells (on load front operated) private limited (HPL
17	Electronic fan regulator	Anchor, Roma, Legrend ,MK, Crabtree
18	Modular Switches and Sockets	Legrand, Crabtree, Roma, Anchor Modular Series,MK
18	Light fixture	Philips, Wipro, Havells, CG.
19	Ceiling fan, Exhaust Fan	Usha, orient(PSPO),CG,Havells
18	Modular Switches and Sockets	Legrand, Crabtree, Roma, Anchor Modular Series,MK

Note : All the materials to be ISI Marked. The materials shall be only of the approved makes as specified in this List. The contractor shall submit sample of all the makes and the specified in this List and the architect/ Bank shall have the proper to select any of them. Bank/ Architect decision in this regard shall be binding on the contractor. In case any material is not available for any one or all of this approved make the architect/ Bank shall select and approved other alternative makes and material. The Contractor shall get the samples of all items covered in this List from Bank/Architect before commissioning of work.