



**SBI INFRA MANAGEMENT SOLUTIONS PVT LTD  
(WHOLLY OWNED SUBSIDIARY OF SBI)**

INVITES TENDERS ON BEHALF OF SBI LHO, THIRUVANANTHAPURAM  
IN A TWO BID SYSTEM THROUGH E-TENDERING

FOR

**CONSTRUCTION OF UNION/ ASSOCIATION OFFICE AND  
CANTEEN AT BANK'S NEW ADMINISTRATIVE OFFICE BUILDING,  
THRISSUR**

(Contractors who are empanelled with SBI, Thiruvananthapuram Circle for  
carrying out civil works costing above Rs. 10.00 Lacs are only eligible)

Last date for submission of Tender: 3:00P.M. (IST) on 30/07/2019.

Opening of Tenders: 3:30 P.M. (IST) on 30/07/2019.

**M/s. ENARC CONSULTANTS  
Architects & Engineers  
M.G. Road, Thrissur-1  
KERALA  
Ph: 2441901&2441905  
Fax: 91-487-2442011**

**The Assistant General Manager,  
SBI Infra Management Solutions Pvt. Ltd.  
4<sup>th</sup> Floor, SBI LHO Building,  
Poojappura,  
Thiruvananthapuram- 695012**

## NOTICE INVITING TENDER (NIT): TH1201907008

Tenders are invited from the contractors, who are in approved panel of SBI Thiruvananthapuram Circle for carrying out civil work costing above Rs.10.00 Lacs, **for Construction of Union/Association office and Canteen at Bank's New Administrative Office Building, Thrissur.**

1	Estimated cost of work:	Rs. 11.98 Lakhs. (Estimate value is inclusive of GST)
2	Time of Completion:	60 DAYS.
3	Date of download of tender documents from Bank's web site <a href="http://www.sbi.co.in">http://www.sbi.co.in</a> under "procurement news".	From 11/07/2019 to 30/07/2019.
4	Last date and time for Receipt of tender.	Date: 30/07/2019 by 3:00 PM.
5	Earnest Money Deposit. (EMD)	Rs. 12,000.00 (Rupees Twelve Thousand Only) in the form of DD in favour of "SBI Infra Management Solutions Pvt Ltd" payable at Thiruvananthapuram.
6	Tender fees	Rs. 3,000.00 (Rupees Three Thousand Only) <b>to be remitted through SBI e-collect. The procedure for remitting the tender fee is detailed in Annexure-I. Copy of the generated receipt with reference number shall be enclosed with the tender. (Without which tender will be out rightly rejected)</b>
7	Tender to be submitted at:	EMD, Tender fee receipt & technical bid should be submitted physically at SBI Infra Management Solutions Pvt. Ltd., Office, 4th Floor, SBI LHO Building, Poojappura, Thiruvananthapuram - 695012 before 30/07/2019 by 3:00 PM. Contact: Assistant General Manager. 0471-2419410/2419435.
8	Date and Time of opening Tenders: (Technical Bid)	Date: 30/07/2019 by 3:30 PM (IST) at above office address. Technical Bid of those firms / contractors who do not submit EMD and Tender fees shall be rejected. Representatives of Bidder may be present during opening of Technical Bids. However Bids would be opened even in the absence of any or all the bidder's

		representatives. Technically qualified vendors will be intimated to submit the price bid on sbi website 'etender.sbi' on the date fixed by SBIIMS. Price bids submitted will be opened on the same day.
9	Bidder Contact Details. 1) Name of Company. 2) Contact Person. 3) Mailing address with PIN  4) Telephone/Fax No. 5) Mobile No. & E-mail ID 6) GSTIN	
10	Agency for arranging online bidding.	M/S e-procurement Technologies limited, Ahmedabad. E-tendering guidelines may be obtained from Ms. Shubhangi Banodiya, Phone: 079-68136826/6824/6868, +91-9879996111, Email: <a href="mailto:shubhangi@auctiontiger.net">shubhangi@auctiontiger.net</a> OR Mr. Samjad khan, Phone: 079-68136868, +91-9265871720, Email: <a href="mailto:samjad@auctiontiger.net">samjad@auctiontiger.net</a>
11	Minimum value of work to be executed for issue of interim certificate for payment	Rs. 5.00 Lacs (Rupees Five Lakhs only)
12	Date of pre-bid meeting	NA
13	Contact details of SBIIMS	Assistant General Manager (SBIIMS). 0471-2192439/2192435.

The SBIIMS reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.

All the prospective bidders should be prepared for the online submission of price as per the BOQ.

## INSTRUCTIONS TO TENDERERS

1. This tender is invited as a Two Bid system containing Technical bid cum prequalification bid and e-Price Bid. In their own interest the contractors are advised to use their own specific seals and desist from using currency coins for the purpose. Tenders with incomplete or broken seals are liable to be rejected, the matter solely resting at the discretion of the EMPLOYER / ARCHITECTS. If a Contractor does not quote for one or more items, the Tender will be considered as incomplete and will be rejected.
2. Employer /Architect reserves to itself the right to accept or reject any tender without assigning any reason for doing so and does not bind itself to accept the lowest or any other tender. General Specifications are for guidance only. The latest ISI codes and Specifications and mode of measurements will be referred to during execution.
4. The term "THE ARCHITECTS" in the said conditions shall mean **M/s. ENARC CONSULTANTS Architects & Engineers, M.G. Road, Thrissur-1, KERALA, Ph: 2441901 & 2441905, Fax: 91-487-2442011.**
5. "Employer or Client" shall mean **Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd.,Thiruvananthapuram and /or Assistant General Manager (P&E)**
6. The tender is to be submitted in single sealed cover superscribed as **CONSTRUCTION OF UNION/ ASSOCIATION OFFICE AND CANTEEN AT BANK'S NEW ADMINISTRATIVE OFFICE BUILDING, THRISSUR - TECHNICAL BID)** containing the tenderer's EMD, Tender Fee receipt and Technical bid. There should not be any mention about the price in any manner in this cover. All pages should be signed and sealed by the tenderer. No deviations from the tender are acceptable. No deviations from the tender are acceptable.
7. Bill of quantities in respect of each work and specification accompany this tender notice. The Bill of quantities are liable to alternations by omission, deduction or addition at the discretion of the SBIIMS.
9. The applicant must have Income tax (PAN), GST registration and a valid digital certificate. Proof of the same shall be submitted.

On the date specified for opening of Tender, the Technical Bids will be opened and eligible vendors will be shortlisted for participating in e-tendering process.

Please read the 'INSTRUCTIONS TO TENDERERS' thoroughly before submitting the Tenders. Also note to verify the Bank website and confirm that 'CORRIGENDA' to the Tender Notices issued (if any) has been read and / or complied with.

## SAMPLE BUISNESS RULE DOCUMENT

### ONLINE E-TENDERING FOR THE CONSTRUCTION OF UNION/ ASSOCIATION OFFICE AND CANTEEN AT BANK'S NEW ADMINISTRATIVE OFFICE BUILDING, THRISSUR

#### **(A) Business rules for E-tendering:**

1. Only technically qualified contractors will be invited by the project Architect/SBIIMS to participate.
2. SBIIMS will engage the services of an E-tendering service provider who will provide necessary training and assistance before commencement of online submission of bids on Internet.
3. In case of e-tendering, SBIIMS 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 various documents in sealed Envelope to the office of SBI Infrastructure Solutions Pvt Ltd. at the address mentioned hereinbefore by the stipulated date i.e. (1) Technical Bid duly signed and stamped on each page (2) Demand Draft of specified amount of EMD (3) Demand Draft of Application Fees. 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:**

SBIIMS shall finalize the Tender through e-tendering mode for which **M/s. e-Procurement Technologies Ltd, Ahmedabad** has been engaged by SBIIMS as 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 SBIIMS through **M/s. e-Procurement Technologies Ltd, Ahmedabad**, 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 what so ever 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 can not be extended and SBIIMS is not responsible for such eventualities.

2. **M/s. e-Procurement Technologies Ltd, Ahmedabad** shall arrange to train nominated person(s), of the bidder without any cost. They shall also explain to the bidders all the Rules related to the E-tendering. The bidders are required to give their 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-tendering.

4. **BID PRICE:** The Bidder has to quote the rate as per the Tender Document provided by SBIIMS/ their appointed Architects.

5. **VALIDITY OF BIDS:** The Bid price shall be firm for a period specified in the tender document and shall not be subjected to any change whatsoever.

6. Procedure of E-tendering:

i. **Online E-tendering:**

(a) 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.

(b) On line e-tendering is open to the bidders who are technically qualified for participating in the price bidding as per provisions mentioned here in above through SBIIMS approved Service Provider.

(c) 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.

(d) The Contractors are advised not to wait till the last minute to submit their on line item-wise quote in the price bid to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.

(e) It is mandatory to all the bidders participating in the price bid to quote their rates for each and every item.

(f) 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.

7. LOG IN NAME & PASSWORD: Each shortlisted Bidder shall login to the Bank's e-tendering portal <https://etender.sbi/> using their email ID as User Name & generate password. **M/s. e-Procurement Technologies Ltd, Ahmedabad** shall approve the same after verification. All bids made from the approved Login ID of the bidder will be deemed to have been made by the bidder.

8. 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, SBIIMS shall be at liberty to take action as per the tender terms and conditions including forfeiting their EMD

9. At the end of the E-tendering, SBIIMS will decide upon the winner. SBIIMS decision on award of Contract shall be final and binding on all the Bidders.

10. SBIIMS shall be at liberty to cancel the E-tendering process/tender at anytime, before ordering, without assigning any reason.

11. SBIIMS shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.

12. Other terms and conditions shall be as per techno-commercial offers and other correspondences in this regard.

**13. 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 SBIIMS to any other party. SBIIMS decision on award of Contract shall be final and binding on all the Bidders. SBIIMS reserve the right to extend, reschedule or cancel any E-tendering within its sole discretion.

SBIIMS or its authorized service provider **M/s. e-Procurement Technology, Ahmedabad** shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause. , and is not responsible for any damages, including damages that result from, but are not limited to negligence.

SBIIMS or its authorized service provider **M/s. e-Procurement Technology, Ahmedabad** will not be held responsible for consequential damages, including but not limited to systems problems, inability to use the system, loss of electronic information etc.

**N.B.:- All the Bidders are required to submit the Process Compliance Statement(Annexure-II) duly signed to M/s. e-Procurement Technology, Ahmedabad.**

All the bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the online event.

## **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. e-Procurement Technology,  
B-705, Wall Street - II, Opp. Orient Club, Ellisbridge,  
Ahmedabad – 380006,  
State Gujarat, India

Ms. Shubhangi Banodiya, Phone: 079-68136826/6824/6868, +91-9879996111, Email: [shubhangi@auctiontiger.net](mailto:shubhangi@auctiontiger.net) OR Mr. Samjad khan, Phone: 079-68136868, +91-9265871720, Email: [samjad@auctiontiger.net](mailto:samjad@auctiontiger.net)

Email:

### **AGREEMENT TO THE PROCESS RELATED TERMS AND CONDITIONS FOR THE ONLINE E-TENDERING FOR CONSTRUCTION OF UNION/ ASSOCIATION OFFICE AND CANTEEN AT BANK'S NEW ADMINISTRATIVE OFFICE BUILDING, THRISSUR**

**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 SBIIMS 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 SBIIMS and M/s. **e-Procurement Technologies Ltd, Ahmedabad** 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.

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 -----



## 1. TENDER FORM

### **CONSTRUCTION OF UNION/ ASSOCIATION OFFICE AND CANTEEN AT BANK'S NEW ADMINISTRATIVE OFFICE BUILDING, THRISSUR**

Dear Sirs,

I/We the undersigned have carefully gone through and clearly understood after visiting the site and the Tender drawings and tender documents comprising of the tender form, Notice to contractors, and conditions for building contract, Special Conditions, Specifications and Schedule of Probable quantities and Draft Agreement prepared by your Architects. M/s. ENARC CONSULTANTS Architects & Engineers, M.G. Road, Thrissur-1, KERALA, Ph: 2441901 & 2441905, Fax: 91-487-2442011.

I/We do hereby undertake to execute and complete the whole or part of the work (as desired by you) at the respective rates which/I/We have quoted for the respective items of the Probable Bill of Quantities.

I/We are depositing Earnest Money Deposit along with this tender for due execution of the work at my/our tendered rates together with any variations which shall be adjusted by the Architects at prices based on our tendered rates. I/We shall deposit further sum equivalent to 2% of tender amount in the form of DD/BC favouring 'State Bank of India' payable at **Thiruvananthapuram**, in the event of my/our tender being accepted, towards initial security deposit within 15 days from the date of work order. The same shall be kept as part of the security deposit. On submission of DD towards Initial Security deposit, DD submitted towards EMD will be released to the successful bidder.

In the event of this Tender being accepted, I/We agree to enter into an agreement as and when required and execute the contract according to your form of Agreement. In case of failure to deposit Initial Security Deposit or failure to execute the agreement, I/We do hereby bind myself/ourselves to forfeit the aforesaid Earnest Money deposit.

I/We further agree to complete the work covered in the said schedule of quantities within 60 DAYS from the 3<sup>rd</sup> day reckoned from the date of issue of the work order to commence the work or on which contractor is instructed to take possession of the site, whichever is later.

I/We agree not to employ Sub-contractors other than those that may be specifically approved by Employer/ Architects for this contract work.

I/We agree to get the work, workers, employees (of contractor) engaged on the work at site and all materials at site for execution of the work shall be insured comprehensive insurance including fire/accidents/ rain/ floods/riots/CAR policy (contractor's all risk insurance policy) and the insurance shall cover the period from date of start of work to date of actual completion of work plus 3 months. In case part work is taken over by the Employer before final completion of the whole work, such parts may not be covered by the insurance from the date of taking over that part

of work by the Employer. Draft Insurance deed will be got vetted from the Architect, before obtaining the same. All the rates quoted by me/ us are inclusive of the same in full and nothing extra shall be claimed anytime on account of any of these.

I/We agree to pay Income tax, to be deducted at source, at the rate prevailing from time to time on the Gross value of the work done, and the rates quoted by me/we are inclusive of same.

Yours faithfully,

Contractor's Signature

Address:

Date:

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

## 2. NOTICE TO CONTRACTOR

ADDRESS:

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

**PROJECT: CONSTRUCTION OF UNION/ ASSOCIATION OFFICE AND  
CANTEEN AT BANK'S NEW ADMINISTRATIVE OFFICE BUILDING,  
THRISSUR**

Dear Sirs,

1. On behalf of our clients, **M/s SBIIMS Thiruvananthapuram**, we have pleasure in inviting you to tender for the aforesaid work.

The scope of work broadly as given below is for **CONSTRUCTION OF  
UNION/ ASSOCIATION OFFICE AND CANTEEN AT BANK'S NEW  
ADMINISTRATIVE OFFICE BUILDING, THRISSUR**

2. The tenderer must obtain for himself, on his own responsibility and at his own expenses, all the information which may be necessary for the purpose of filling this tender and for entering into a contract for the execution of the same and must examine the drawings and inspect the site of the work and acquaint himself with all local conditions and matters pertaining thereto.
3. Each of the tender documents page is required to be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the General conditions etc., as laid down. Any tender with any of the documents not so signed will be rejected.
4. The tender documents must be filled in English and all the entries must be made by hand and written in ink. If any of the documents are missing or un-signed, the tender shall be considered invalid.
5. Each and every one of all erasures and additions/alterations made, while filling the tender, must be attested by initials of the tenderer. Overwriting of figures is not permitted. Failure to comply with either of these conditions will render the tender void.

After submission of the tender no advice or any change in rate or conditions will be entertained. All the rates should be quoted both in figures and words. In-case of any discrepancy in rates quoted in words/figures and the amounts, the rate quoted in words shall be taken as final and binding.

6. The tender shall be valid for a period of 90 days from the date of opening.
- 7 TOTAL SECURITY DEPOSIT: shall comprise of:
  - a. Initial Security deposit
  - b. Retention money
- 8.1 The intending tenderer shall deposit with **SBIIMS Thiruvananthapuram**, by Demand Draft, the Earnest Money, as a guarantee of good faith, which amount shall be forfeited as liquidated damages, in the event of any evasive/direct refusal or delay in starting the work and or signing the contract. The deposit of the unsuccessful tenderers will be returned, without interest, immediately after a decision is taken regarding the award of the contract. The Earnest money of the successful tenderer will be returned after receipt of DD towards Initial Security Deposit, in the form of DD favouring "State Bank of India" for an amount of 2% of the contract value. A tender not accompanied by Earnest money deposit will not be considered.
- 8.2 The successful tenderer will have to pay further sum equivalent to 2% of his contract value, as initial Security Deposit (ISD) by means of a D.D./Banker's cheque in favour of The 'State Bank of India' payable at Thiruvananthapuram, within 15 days from the date of issue of work order to commence work. On receipt of the same, the DD submitted towards EMD shall be released. Initial Security deposit thus paid shall be held by the State Bank of India as part of Security deposit, for due execution and fulfillment of the contract, till the completion of the work and defect liability period in all respects and shall not bear any interest.
- 8.3 Together with the money paid under the above clause, further retention of 10% of the value of the work done will be deducted from every running bill, till total retention, including initial SD paid earlier, comes to 5% of the contract value, and same shall be held by the Bank as Total Security Deposit. On the Architect's certifying the completion of work, 50% of the total security deposit shall be released to the contractor along with the final certificate of payment, and the balance amount will be retained in the manner stated elsewhere for a further period of twelve months after the completion date recorded in completion certificate, issued by the Architects and agreed to by the SBIIMS/Bank.
9. Within 15 days of the receipt of intimation from the SBIIMS/ Architects of the acceptance of his/their tender, the successful tenderer shall be bound to sign an agreement, on a stamp paper in accordance with the Draft Agreement and conditions of contract attached herewith, but the work order or the written acceptance of a tender by the Employer will constitute a binding agreement between the Employer and the person tendering whether such formal contract is or not signed by the contractor.

11. All compensation or other sums of money payable by the contractors to the clients, under the terms of this contract, may be deducted from the Security Deposit or from any sum that may be or may become due to the contractor on any account whatsoever, and in the event of the Security deposit being reduced by reasons of any such deductions, the contractor shall within 15 days of being asked to do so make good in cash or cheque, any sum which have been deducted from his security deposit.
12. The rates quoted by the Contractor shall include all eventualities, such as heavy rain, sudden floods, accidents, fire, riots etc., which may cause damage to the executed work or which may totally wash out the work. Until the completion certificate is issued to the Contractors, neither the Architect nor the clients will be responsible for such damage or wash out of the construction work.
13. Time is the essence of the contract. The work should be completed within 60 days from the date of commencement. The date of commencement shall be within THREE days after confirmation.

The successful contractor will have to give a CPM/PERT chart of various activities of work to be done so that the work gets completed within the stipulated time. The chart shall be submitted within 15 days from the date of acceptance of the tender.

14. If the contractor fails to complete the work by the Scheduled date of completion or within any sanctioned extended time, he will have to pay liquidated damages at the rate of ½% of contract amount for each week of delay the work remains incomplete beyond the completion (Original/extended date), subject to maximum of 5% of the contract value (without extra items)
15. The quantities contained in the Schedule are only indicative. The work as actually carried out and done will be measured up from time to time, for which payment will be made subject to the terms and conditions of contract.
16. The unit prices shall be deemed to be fixed prices. In case of extra items, a record of labour charges paid shall be maintained and shall be presented every month for extra/substituted items regularly to the Architects for checking. The settlement will be made based on figures arrived at jointly and taking into account unit prices of items of work mentioned in the contract assigned to the successful tenderers. In case, of extra items, where similar or comparable items are quoted in the tender, extra rates shall invariably be based on those tender rates to the extent reasonable. In case of extra items, where similar items are not available in the tender, the rates for such items shall be derived as per C.P.W.D analysis of rates as applicable.
17. SBIIMS, do not bind themselves to accept the lowest or any tender and reserve to themselves the right to accept or reject any or all

tenders, either in whole or in part, without assigning any reason whatsoever for doing so.

18. No employee of the bank or SBIIMS is allowed to work as a contractor for a period of two years of his retirement from bank service, without the previous permission of the bank or SBIIMS. This contract is liable to be cancelled, if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the bank or SBIIMS as aforesaid before submission of the tender or engagement in the contractor's service.
19. The tenderer, apart from being a competent contractor must associate himself with agencies of the appropriate class who are eligible to tender for (1) Electrical (2) Interiors (fixed furniture), as the case maybe.

20. Release of security deposit:

- i) 50% of the total security deposit will be released along with the final certificate of payments as stipulated.
- ii) Balance 50% of total security deposit will also be released as noted under (i) above, subject to submission of a Bank Guarantee, to the satisfaction of SBI for an equivalent amount. This Bank Guarantee shall be valid upto completion of defects/removal liability period plus 3 months. The Bank guarantee shall be released after completion of defect liability period provided that there is no defects noticed in the work during defects liability period or defects if any is rectified by the contractor to the entire satisfaction of SBIIMS.

ARCHITECTS:

**M/s. ENARC CONSULTANTS**

Architects & Engineers  
M.G. Road, Thrissur-1  
KERALA

Ph: 2441901 & 2441905  
Fax: 91-487-2442011

### 3. ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT made the \_\_\_\_\_ day of \_\_\_\_\_ 2019 between Assistant General Manager, Premises & Estate, State Bank Of India, Local Head Office, Thiruvananthapuram (hereinafter called the "Employer") of the one part and \_\_\_\_\_ of \_\_\_\_\_ (hereinafter called "The Contractor") of the other part, whereas the Employer is desirous of getting \_\_\_\_\_ the \_\_\_\_\_ work \_\_\_\_\_ of \_\_\_\_\_ " \_\_\_\_\_" executed and has caused drawings, conditions of contract, specifications and schedule of quantities etc., describing the works prepared by M/s. ENARC CONSULTANTS Architects & Engineers, M.G. Road, Thrissur-1, KERALA, AND WHEREAS the SAID DRAWINGS numbered as per list attached inclusive of \_\_\_\_\_ and the conditions of contract, specifications and schedule of quantities etc., have been signed by or on behalf of the parties hereto.

AND WHEREAS THE CONTRACTOR has agreed to execute upon and subject to the conditions set forth in the Schedule hereto (hereinafter referred to as "Said Conditions") the works shown upon the said drawings and described in the same specifications and included in the said schedule of quantities for such sum as may be ascertained to be payable in terms of the Bills of Quantities, and which sum is estimated to be Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) (hereinafter referred to as "Said Contract Amount").

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said sum to be paid at the times and in the manner set forth in the said conditions, the contractor shall upon and subject to the said conditions, execute and complete the work shown in the said drawings and described in the said specifications.
2. The Employer shall pay the contractor the said sum or such sums as shall become payable hereunder at the times and in the manner specified in the said conditions.

The term "Architect" in the said conditions shall mean the said M/s. ENARC CONSULTANTS Architects & Engineers, M.G. Road, Thrissur-1, KERALA or in the event of their ceasing to be the Architect for the purpose of this contract, such other person as shall be nominated for that purpose by the Employer, provided always that no persons subsequently appointed to be the Architect under this contract shall be entitled to disregard or over-rule any previous decision or approval or direction given or expressed by the Architect for the time being.

3. Tender documents containing work order Notice to the Contractor, Conditions of Contract, Appendix thereto, Special Conditions of

Contract, Specifications and Schedule of Quantities with the rates entered therein, shall be read and studied as forming part of this agreement and the parties hereto shall respectively abide by and submit themselves to the conditions and stipulations and perform the agreement on their part respectively in such conditions contained.

4. The contract is neither a fixed lumpsum contract or a piece work contract, but is a contract to carry out work in respect of the entire works to be paid for according to actual measured quantities, including variations from BOQ at the rates contained in the Schedule of rates and Probable bill of quantities or as provided in the said conditions
5. The Employer through the Architect, reserves to himself the right of altering the drawings and natures of the work, of adding/substitution to or omitting any items of work or having portions of the same carried out through alternate agencies without prejudice to this contract.
6. Time shall be considered a the essence of this agreement and the contractor hereby agrees to commence the work soon after the site is handed over to him but within 3 days reckoned from the date of issue of work order to execute the work, as provided for in the said conditions and complete the entire work in **60 days** subject to nevertheless to the provisions for extension of time.
7. This agreement and contract shall be deemed to have been made in Thiruvananthapuram and any questions or dispute rising out of or in any way connected with this Agreement and Contract shall be deemed to have arisen in Thiruvananthapuram and only the courts in Thiruvananthapuram shall have jurisdiction to determine the same. The limitation period will be 90 days from the date of dispute having arisen and in any case not after acceptance of full and final payment.

AS WITNESS our hand this \_\_\_\_\_ day of \_\_\_\_\_ 2019

Signed by the said in the presence of:

WITNESS : SIGNATURE

NAME :

ADDRESS : EMPLOYER

WITNESS : SIGNATURE

NAME :

ADDRESS :



#### **4. APPENDIX TO GENERAL CONDITIONS OF CONTRACT**

1. Initial Security Deposit (ISD) : 2% of contract value
2. Defects Liability period : 12 months after completion as recorded in the completion certificate.
3. Agreed Liquidated Damages : ½% of contract amount per week of delay subject to a maximum of 5% of contract value.
4. Period of final measurement : Three months after completion as recorded in the completion certificate.
5. Secured Advance : Nil
- 6.a) Retention money from each bill : 10% of gross value of each interim bill, subject to 6(b) below.  
  
b) Total Security Deposit including : 5% of the contract value.  
Retention money and Initial Security Deposit
7. Release of Security deposit after : 50% of the total security to be released along with final certificate of payment, but only after removing all his materials, equipment, labour, huts/force, temporary sheds/stores, all his installations, machinery etc., from the site. Balance payment to be released on submission of Bank Guarantee on any Scheduled Bank, Other than SBI, in the prescribed manner and valid till the completion of defects liability period of 12 months plus 3 months.
8. Period for honouring certificate : 15 working days from date of Architects certificate of payment for interim bills and 45 working days from the date of Architects certificate for payment against final bills.

SIGNATURE OF THE CONTRACTOR WITH DATE

## **5. INDEX TO GENERAL CONDITIONS OF CONTRACT**

1. Interpretations
2. Scope of Contract
3. Drawings and Specifications
4. Schedule of Quantities
5. Sufficiency of Schedule of Quantities
6. Errors in schedule of Quantities
7. Contractor to provide everything necessary
8. Authorities, Notices, Patent rights and royalties
9. Materials and workmanship to conform to description.
10. The setting out
11. Removal of all offensive matters
12. Opening up works
13. Contractor's superintendence and representative on the work
14. Dismissal of workmen
15. Access to works
16. Employer's representative/PMC
17. Assignment of sub-letting
18. Sub-contractors
19. Variations not to vitiate contract
20. Measurement to works
21. Ascertainment of Prices of Extras etc.
22. Unfixed materials
23. Removal of improper work and materials
24. Defects after completion
25. Certificate of virtual completion

26. Other persons engaged by the Employer
27. Insurance in respect of damage to persons and property
28. Contractor's All risk policy
29. Minimum amount of third party Insurance
30. Commencement and completion
31. Delay and extension of time
32. Damages for Non-completion
33. Failure by contractor to comply with Architect's instructions
34. Architect's delay in progress.
35. Suspension of works
36. Prime cost and provisional sums
37. Certificates and payments
38. Notices

## **6. GENERAL CONDITIONS OF CONTRACT**

### **1. INTERPRETATIONS:**

In constructing these conditions and the specifications, schedule of quantities and contract agreement, the following words shall have the meaning herein assigned to them except where the subject or context otherwise required:

- a. "Employer" shall mean Assistant General Manager (SBIIMS) or Assistant general Manager (P&E) and shall include his/their heirs, legal representatives, assignees and successors.
- b. "Contractor" shall mean \_\_\_\_\_ and \_\_\_\_\_ shall include his/their heirs, legal representatives, assignees and successors.
- c. "Banks Engineer" shall mean any Engineer who is employed by SBIIMS or any other Engineer appointed from time to time by the Employer, and certified in writing to the Architect and the contractor, to act as Engineer for the purpose of the Contract in place of the said engineer.
- d. "Architects" shall mean any Engineer/ representative appointed by M/s. ENARC CONSULTANTS Architects & Engineers, M.G. Road, Thrissur-1, KERALA, Ph: 2441901 & 2441905, Fax: 91-487-2442011.
- e. "Works" shall mean the works to be executed in accordance with contract specifications, quantities etc.
- f. "Contract" shall mean the Articles of Agreement, the General Conditions, Special Conditions, the Appendix, the Schedule of Quantities, Specifications and drawings, work order etc., attached hereto and duly signed.
- g. "Contract Price" shall mean the sum named in the Tender, subject to such amount additions thereto or deductions there from as may be made under the provisions, hereinafter contained.
- h. "Site" shall mean the Premises, on which the works are to be, provided, by the Employer or Architect for the purpose of the Contract.
- i. "Drawings" shall mean the drawings referred to in the contract etc., and any modifications of such drawings approved in writing by the Architect and the Bank and such other drawings as may from time to time be furnished or approved in writing by the Architect and Employer.
- j. "Notice in Writing" or written notice shall mean a notice in writing, typed or printed characters sent (unless delivered personally or otherwise provided to have been received) by registered post to the last known private or business address or registered office of the

address and shall be deemed to have been received, when in the ordinary course of post, it would have been delivered.

- k. "Act of Insolvency" shall mean any Act of Insolvency as defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any act amending such original.
- l. "Net Prices" if in arriving at the Contract Amount, the contractor has added to or deducted from the total of the items of the Tender any sum, either as a percentage or otherwise, then the net price of any items, in the tender, shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender, as the price of that item, a similar percentage or proportionate sum. Provided always that in determining the percentage or proportion of the sum so added or deducted by the contractor, the total amount of any Prime cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression "net rates" or "net prices" when used with reference to the contract or account shall be held to mean rates or prices so arrived at.
- m. "Virtual Completion" shall mean that the building is in the opinion of the Architect and Employer, sufficiently completed for occupation by the Employer, in relation to the scope of work of this contract.
- n. Words importing persons include firms and corporations. Words importing the singular only, also include the plural and vice versa, where the context requires.

## 2. **SCOPE OF CONTRACT:**

The contractor shall carry out and complete the said work in every respect in accordance with this contract with the directions of and to the satisfaction of the Architect and Employer. Architect, with the approval of the Employer, may issue further drawings and/or written instructions, details, directions and explanations, which are hereafter collectively referred to as "Architect's Instructions" in regard to:

- a. The variations or modifications of the designs, quality or quantity of works or the addition or omission or substitution of any work.
- b. Any discrepancy in the drawings or between the Schedule of Quantities/ or drawings and/or specifications etc.
- c. The removal and/or re-execution or any works executed by the contractor.
- d. The removal from the site of any material brought there on by the contractor, and the substitution of any other material there from.
- e. The dismissal from the works of any person employed thereupon.
- f. The opening up for inspection of any work covered up.
- g. The amending and making good of any defects under clause 24 "Removal of Improper works and Materials".

The contractor shall forthwith comply and fully execute any work comprised in such Architect's instruction, provided always that

instructions, directions and explanations given to the contractor or his representative upon the works by the Architect shall, if involving a variation, be confirmed in writing by the contractor or within 7 days, and if not dissented from in writing within further 7 days by the Architect, such shall be deemed to be the Architects instructions within the scope of contract.

If compliance with the Architect's instructions as aforesaid involved work and/or expense and/or loss beyond that contemplated by the contract, then unless the same were issued owing to some breach of this contract by the contractors, the employer shall pay to the Contractor on the Architect's certificate, the price of the said work (as an extra to be valued as herein after provided) and/or expense and/or loss.

### **3. DRAWINGS AND SPECIFICATIONS:**

The works shall be carried out to the entire satisfaction of the EMPLOYER and the Architect, in accordance with the signed contract document, drawings and specifications and such further drawings and details as may be provided by the Architect, and in accordance with such written instructions, directions and explanations, as may from time to time be given by the Architect and the SBIIMS, whose decision as to the sufficiency and quality of the work and materials shall be final and binding on the contractor. If the work shown on any such further drawings or work that may be necessary to comply with any such instructions, directions or explanations, be in the opinion of the contractor outside the scope of work or reasonably could not be inferred from the contract, he shall before proceeding with such work, give notice in writing to this effect to the Architect and the SBIIMS, and in the event of the Architects and the SBIIMS agreeing to the same in writing, the contractor shall be entitled to an allowance in respect of such extra work as an authorized extra. If the Architect and the contractor fail to agree, as to whether or not there is an extra, then, if the Architect decided that the contractor is to carry out the said work, the contractor shall do so, and the question whether or not there is any extra and if so, the amount thereof, shall failing agreement be settled by Arbitration as hereinafter provided, but such reference shall in no way delay the fulfillment of this contract.

No drawing shall be taken as in itself an order for variation, unless in addition to the Architect's signature, it bears express words stating that it is intended to be such an order or bears a remark "VALID FOR CONSTRUCTION". No claim for payment for extra work shall be allowed, unless the said work shall have been executed under the provisions of clause 8 (Authorities, notices, patents, rights and royalties) or by the authorities, of directions in drawing of the Architect as herein mentioned.

One complete set of the signed drawings and a copy of contract document (specifications and schedule of quantities etc) shall be

furnished by the Architect to the contractor. The Architect shall furnish within such time as he may consider reasonable, one copy of any additional drawings, which in his opinion may be necessary for the execution of any part of the work. Such copies shall be kept at the works, and the Architect or his representatives shall, at all reasonable times have access to the same and shall be returned to the Architect by the Contractor, before the issue of the final certificate. The original contract documents shall remain in the custody of employer.

4. SCHEDULE OF QUANTITIES:

The Schedule of Quantities unless otherwise stated shall be deemed to have been prepared in accordance with the Standard Procedure of the Architects and shall be considered to be approximate and no liability shall attach to the Architect for any error/variations that may be discovered therein.

5. SUFFICIENCY OF SCHEDULE OF QUANTITIES:

The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the schedule of Quantities and/or the Schedule of Rates and Prices, which rates and prices shall cover all things necessary for the proper completion of the works.

6. ERRORS IN SCHEDULE OF QUANTITIES:

Should any error appear in the Schedule of Quantities, other than in the Contractor's prices and calculations, it shall be rectified and such rectification shall not vitiate the contract but shall constitute a variation of the contract and be dealt with as an authorized extra or deduction.

7. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY:

The contractor shall provide everything necessary for the proper execution of works according to the true intent and meaning of the drawings, specifications and the Schedule of Quantities etc., taken together, whether the same may or may not be particularly shown or described there in, provided the same can be inferred therefrom. The several documents forming the contract are to be taken as mutually explanatory to one another; detailed drawings and figured dimensions in preference to scale, and special conditions in preference to General conditions and particular specifications in preference to General specifications.

In case of discrepancy between the Schedule of Quantities, the specifications and/or the drawings, the following order of preference shall be observed:-

- i) Description of Schedule of Quantities.
- ii) Particular specifications and special condition, if any.
- iii) Drawings.
- iv) C.P.W.D. specifications.
- v) Indian Standard specifications of B.I.S.

If there are varying or conflicting provisions made in any document forming part of the contract, the SBIIMS and Architect shall be the deciding authority, with regard to the intention of the document and his decision shall be final and binding on the contractor.

Any error in description, quantity or rate in schedule of quantities or any omission therefrom shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works expressed therein according to drawings and specifications or from any of his obligations under the contract.

The contractor shall make his own arrangements for providing water, for carrying out the work, at his own cost. If water from any source other than Municipal main is to be used for construction, the same shall be tested at the contractor's cost, and a report submitted to the Architect for his approval, before such water is used for the works. Temporary Electrical connections shall be obtained by the contractor to facilitate execution and completion of work at their cost and all the charges there of should be borne by them.

The contractor shall supply, fix and maintain at his cost, during the execution of any works, all the necessary scaffolding, staging, hoarding, watching and lighting during nights as well as by day required not only for the proper execution and protection of the said works, but also for the protection of the public and the safety of any adjacent road, streets, cellars, vaults, pavements, walls, houses, buildings and all other erections, matters or things. The Contractor shall take down and remove any or all such scaffolding, staging, etc., as occasion shall require or when ordered or so to do, and shall fully reinstate at his own cost and make good all the matters and things disturbed during the execution of the works to the satisfaction of the Architects.

8. **AUTHORITIES, NOTICES, PATENT RIGHTS AND ROYALTIES:**

The contractor shall conform to the provisions of the statutes relating to the works, and to the regulation and by laws of any local authority, and of any water, lighting and other companies or authorities, with whose systems the structures are proposed to be connected; and shall before making any variation from the drawings or specifications, that may be necessitated by so conforming, give to the Architects a written notice, specifying the variations proposed to be made and the reason for making it and apply for instruction thereon. In case, the contractor shall not within ten days receive such instructions, he shall proceed with the work conforming with the provisions, regulations or by laws in question.

The contractor shall bring to the attention of the Architect all notices required by the said acts, regulations or bylaws to be given to any authority, and pay to such authority or to any Public Officer all fees that may be properly chargeable in respect of the works, and lodge the receipts with the Architects.



The contractor shall indemnify the Employer against all claims in respect of patent rights, designs, trademarks or name or other protected rights in respect of any constructional plant, machine, work or material used for or in connection with works or temporary works and from and against all claims, demands, proceedings, damages, costs, charges, and expenses whatsoever in respect thereof or in relation thereto. The Contractor shall defend all actions arising from such claims, unless he has informed the Architects, before any such infringement and received their permission to proceed, and shall himself pay all royalties, license fees, damages, cost and changes of all and every sort that may be legally incurred in respect thereof.

**9. MATERIALS AND WORKMANSHIP TO CONFORM DESCRIPTION:**

All materials and workmanship shall, so far as procurable be of the respective kinds specified in the Schedule of Quantities and/or specifications and in accordance with the Architect's instructions and the contractor shall on the request of the Architects furnish to them all invoices, accounts, receipts and the other vouchers to prove that the materials comply therewith. The contractor shall at his own cost arrange for and/or carry any test of any materials, which the Architect & Employer may require. The costs of materials used for testing, packing, transportation and testing shall be borne by the contractor and his quoted rates/amounts shall include all such expenses/contingencies.

- 9a. In case of non-availability of specified Make/brand of any material the alternate make/brand will be given by the Employer/Architect.

**10. THE SETTING OUT:**

The Contractor shall at his own expense, set out the works accurately in accordance with the plans and to the complete satisfaction of the Architect. The Contractor shall be solely responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time any error shall appear during the progress or on completion of any part of the work, the contractor shall at his cost rectify such error if called upon to the satisfaction of the Architects/Employer. The work shall from time to time be inspected by the Architect and/or his representatives, but such inspections shall not exonerate the contractor in any way from his obligation to remedy any defects, which may be found to exist at any stage of the work or after the work is completed, at his own cost.

**11. REMOVAL OF ALL OFFENSIVE MATTERS:**

All debris arising out of the work shall be disposed off as per the rules and regulations of the Local authorities concerned.

**12. OPENING UP WORKS:**

In the event of the Architect / Employer feels that the work is not carried out as per tender specifications, contractor at his cost shall

open the concealed work at his cost for which no Extra cost will be paid.

**13. CONTRACTOR'S SUPERINTENDENCE & REPRESENTATIVE ON THE WORKS:**

The contractor shall give all necessary personal superintendence during the execution of the works and so long thereafter as the Architect may consider it necessary until the expiration of the "Defects Liability Period" stated in clause 25. The Contractor shall meet the Architect or his representative, whenever required and so informed by the Architect.

The Contractor shall maintain and be represented at site at all times, while the work is in progress, by a responsible and efficient foreman, approved by the Architect and who must thoroughly understand all the trades entailed and be constantly in attendance while the men are at work. Any directions, explanations, instructions or notices given by the Architect & Employer to such foreman shall be deemed to have been given to the contractor and shall be binding as such on the contractor. The Foreman shall be thoroughly conversant with the English language and should be able to read, write and speak English.

**14. DISMISSAL OF WORKMEN:**

The contractor shall on the request of the Architect and Employer immediately dismiss from the works any person employed thereon who may, in the opinion of the Architect and Employer be unsuitable or incompetent or who may misconduct himself, and such person shall not again be employed or allowed on the works without the permission of the Architect & Employer.

**15. ACCESS TO WORKS:**

The Architect, the Employer and any person authorized by them shall at all reasonable times have free access to the works and to the workshops, factories or other places where materials are being prepared or constructed by the contract and also to any place where the materials are lying or from which they are being obtained. The Contractor shall give every facility to the Architect and the Employer and their representatives for inspection and examination and test of the materials and workmanship. No person, unless authorised by the Architect or the Employer, except the representatives of Public authorities, shall be allowed on the works at any time. If any work is to be done at a place other than the site of works, the contractor shall obtain the written permission of the Architect for doing so.

**16. EMPLOYER'S REPRESENTATIVE/PMC:**

The Employer may appoint an assistant to the Engineer, any Site Engineer or Project Management Consultant (PMC), who shall be the

representative of the Employer. The duties of the Employer's representatives are to watch and supervise the works and to test any materials to be used and of workmanship employed in connection with the works. He shall have no authority either to relieve the contractor of any of his duties or obligations under the contract, or except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

The contractor shall afford the Employer's representative every facility and assistance for examining the works and materials and checking and measuring item and materials. Neither the Employer's representative nor any assistant to the Architect shall have power to revoke, alter, enlarge or relax the requirements of this contract, or to sanction any new-work, additions, alterations, deviations or omissions unless such an authority may be specially conferred by a written order of the Architect and Employer.

The Employer's representative shall have to give notice to the Contractor or his representing about the non-approval of any work or materials and such works shall be suspended or the use of such materials should be discontinued until the decision of the Architect is obtained. The work will from time to time be examined by the Architect or the Employer's representative, but such examinations shall not in any way exonerate the contractor from the obligation to remedy any defects, which may be found to exist at any stage of the work or after the same is completed. Subject to the limitations of the clause, the contractor shall take instructions only from the Architect and Employer.

#### **17. ASSIGNMENT OF SUB-LETTING:**

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 thereof or interest therein without the written consent of the Architect and Employer, and no undertaking shall relieve the contractor from the full and entire responsibility of the contract or from active superintendence of the works during their progress.

#### **18. SUB-CONTRACTORS:**

All specialists, merchants, tradesmen, and others, executing any work or supply and fixing any goods for which prime cost prices or provisional sums are included in the Schedule of Quantities and/or specifications, who may be nominated or selected by the Architect and employer and hereby declared to be sub-contractors employed by the Contractor, are herein referred to as nominated sub-contractors. No nominated sub-contractors shall be employed on or in connection with the works, against whom the contractor shall make reasonable

objection or (see where the Architect and contractor shall otherwise agree), who will not enter into a contract provided.

The nominated sub-contractors shall indemnify the contractor against the same obligations in respect of the sub-contract as the contractor is under, in respect of this contract.

The nominated sub-contractors shall indemnify the contractor against claims in respect of any negligence by the sub-contractor, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the contractor or under any Workman's Compensation Act in force.

- a. Payment shall be made by the contractor to the nominated sub-contractor, within 14 days of receipt of the Architect's certificate, provided that before any certificate is issued, the contractor shall upon request furnish to the Architect proof that all nominated sub-contractor's account included in the previous certificates have been duly discharged; in default whereof the Employer may pay the same upon a certificate of the Architect and deduct the amount thereof from any sums due to the contractor. The exercise of this power shall not create any contract between Employer and Sub-contractor.

#### **19. VARIATIONS NOT TO VITIATE CONTRACT:**

The contractor shall when directed in writing by the Architect, omit from or vary works shown upon the drawings or described in the specifications or included in the priced schedule of quantities, but the contractor shall not make any alterations or additions to or omissions from the works or any deviations from the provisions of the Contract without such authorizations or direction in writing from the Architect and Employer.

No claim for any extra item or deviations shall be allowed, unless it shall have been executed by the Authority of the Architect and Employer as herein mentioned. Any such extra item or deviation is hereinafter referred to as an authorised extra item or deviation. No variations i.e., additions, omissions or substitutions shall vitiate the contract.

The rate of items not included in the bill of quantities shall be settled by the Architect and Employer.

#### **20. MEASUREMENTS OF WORKS:**

The Architect/PMC may from time to time intimate the Contractor that he requires the works to be measured and the contractor shall forthwith attend or send a qualified agent to assist PMC/Architect's representative in taking measurements and calculations, and to furnish all particulars or give all assistance required by either of them.

Should the contractor not attend or neglect or omit to send such an agent, then the measurements taken by the PMC/Architects representative approved by them shall be taken to be the correct measurements. The mode of measurements wherever not mentioned in contract documents be taken in accordance with the Indian Standard of Method of measurements of building works (I.S.1200 - 1958) and its revisions, if any. In case of any discrepancy between various contract documents on mode of measurements, the mode given in Bill of Quantities will take precedence over others.

The contractor or his agent may at the time of measurement take such notes and measurements as he may require.

All authorized extra works, omissions and all variations made without the Architect's knowledge, if substantially sanctioned by him in writing shall be included in such measurements.

**21. ASCERTAINMENT OF PRICES FOR SUBSTITUTIONS/EXTRA ETC.:**

Any variations, is made, and any substituted/ extra (new) items have been executed, the valuation of such quantities/items, amounts or variations, unless previously or otherwise agreed upon, shall be made in accordance with the following rules:

- a. The net rates or prices in the original tender shall determine the valuation of the extra (additional quantities and or extra/substituted item of work), where that work is of a similar character and executed under similar conditions of the work priced therein. This applied to extra and substituted items of work to the extent, they are similar in nature to the items in the contract.
- b. The net prices given in the original tender shall determine the value of the items omitted, provided if omissions vary the conditions under which any remaining items of work are carried out, the prices for the same shall be valued under thereof.
- c. Where extra/substituted item of works are not of similar character (either partly & fully) and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items of works are carried out or if the amount of any omission or additions relative to the amount of the whole of the contract works or to be any part thereof shall be such that in the opinion of the Architects the net rate or price contained in the priced schedule of quantities or tender or for any item of the work involves less or more beyond that reasonably contemplated by the Contractor or is by reason of such omission or addition rendered unreasonable for in-applicable, the Architect shall fix in consultation with the Employer such other rates or prices as in the circumstances he shall think reasonable and proper, which shall be final and binding on the contractor. For extra and substituted items this will apply for portions of the items for which, items of similar nature are not available in the contract.

- d. Where extra and or substituted items of work cannot be properly measured or valued, the contractor shall be allowed based on the net local day work rates and wages for the district and prevalent market rates for materials etc., at the time of ordering that item; provided that in either case vouchers for wages paid specifying the daily time (and if required by the Architect, the workmen's name) and materials employed at or before the end of the week following that in which the work has been executed.

The measurements and valuations in respect of the extra and substituted items of work shall be completed within the "Period of final measurement" or within 3 (three) months from the completion of the contract works as defined under clause No.26 (certificate of virtual completion).

## **22. UNFIXED MATERIALS:**

When any materials intended for the works shall have been placed at site by the contractor, such materials shall not be removed therefrom (except for the purposes of being used on the works) without the written authority of the Architect and Employer and when the contractor shall have received payment in respect of any certificate in which the architect shall have stated that he has taken into account the value of such unfixed materials on the works such materials shall become the property of the Employer and the Contractor shall be liable for any loss or damage to any such materials.

## **23. REMOVAL OF IMPROPER WORK AND MATERIALS:**

The Architect shall, during the progress of the works, have power to order in writing from time to time the removal from the works, within such reasonable times as may be specified in the order, of any materials which in the opinion of the Architect and Employer are not in accordance with the specifications or the instructions of the Architect and Employer; and the substitution with proper materials and the removal and proper re-execution of any work, which has been executed with materials or workmanship, not in accordance with the contract/drawings and specifications or instructions etc., the contractor shall forthwith carry out such orders at his own cost. In case of default on the part of the contractor to carry out such orders, the Employer shall have the power to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor, and shall be recoverable from the contractor by the Employer, or may be deducted by the Architect, from any money due or may become due to the contractor for this work or on any other account.

Instead of this procedure for work not done in accordance with the contract, the Architect and Employer may allow such work to remain, and in that case may make allowance for the difference in value together with such further allowance for damages to the Employer, as in his opinion may be reasonable. This allowance shall

be recoverable from the contractor by the Employer, or may be deducted by the Architect, from any money due or may become due to the contractor for this work or on any other accounts. The decision of Architects in these matters shall be final and binding on the contractor.

**24. DEFECTS AFTER COMPLETION:**

Any defect, shrinkage, settlement or other faults which may appear within the "Defects Liability Period" stated in the Appendix, within 12 months after the virtual completion of the works arising in the opinion of the Architect and the Bank, from materials or workmanship not in accordance with the contract, shall upon the directions and writing of the Architect and Employer and within such reasonable time as shall be specified therein, be rectified and made good by the Contractor at his own cost. In case of default, the Employer may employ any other person to amend and make good such defects, shrinkage, settlements or other faults. All damages, loss and expenses consequent therein or incidental thereto shall be made good and borne by the contractor and such damage, loss and expenses shall be recoverable from him by the employer or may be deducted by the Employer, the damages, loss and expenses from any sums that may be due to the contractor or amount retained under condition 38 (Certificate and payment) and in event of the amount retained being insufficient recover the balance from the amount held against EMD & Security deposit or any other amounts due or may become due later.

**25. CERTIFICATE OF VIRTUAL COMPLETION:**

The contractors shall intimate in writing to the Architects, as and when the works are complete in all respects in order to enable the Architect to intimate the Employer to take possession of the same. The works shall not be considered as virtually completed, until the Architect has certified in writing that the same have been "Virtually completed" and accepted by the employer. The defects liability period shall commence, only from the date of such virtual completion certificate.

**26. OTHER PERSONS ENGAGED BY THE EMPLOYER:**

The Employer reserves the right to use the premises and any portions of the site for the execution of any work not included in this contract which he may desire to carry out through other persons, and the contractor is to allow all reasonable facilities for the execution of such work, except by special arrangement with the Employer. Such work shall be carried out in such a manner as not to impede the progress of the works included in the contract, and the contractor shall not be responsible for any damage or delay which may happen to or be occasioned by such work.

27. INSURANCE IN RESPECT OF DAMAGE TO PERSONS AND PROPERTY:

The contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property, which may arise from operation or neglect of himself or any of his or sub-contractor's employees, whether or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include, inter alia any damage to buildings, whether immediately adjacent or otherwise, any damage to roads, caused to the buildings and works forming the subject of this contract by frost or other inclement weather. The contractor shall indemnify the employer and hold him harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of government or otherwise, and also in respect of any award of compensation or damages consequent upon such claim.

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

The contractor shall indemnify the Employer against all claims which may be made against the Employer, by any member of the Public or other party, in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own cost, effect and maintain until one month after the works are taken over by the Employer or three months after the date of completion of the contract with an approved office, a policy of Insurance in the joint names of the Employer and the contractor against such risks and signing of the contract. The contract shall also indemnify the employer against all claims which may be made upon the Employer whether under the Workmen's compensation act or any other statute in force during the currency of this contract or at common law in respect of any employees of the contractor or of any sub-contractor and shall at his own expense effect and maintain until one month beyond the virtual completion of the contract, with an approved office. A policy of Insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Architects from time to time, during the currency of the contract. In default of the contractor insuring as provided above, the Architect on behalf of the Employer may so insure and may deduct the premiums paid from any money due or which may become due to the contractor.

The contractor shall be responsible for anything which may be excluded from the Insurance Policies above referred to and also for all other damages to any property arising out of and incidental to the negligent or defective carrying out of this contract however, such damage shall be caused.



The Contractor shall also indemnify the Employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any Award of or compensation of damages arising therefrom.

The Employer with the concurrence of the Architect shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or occurring from or in respect of any such claims of damages from any sums due or to become due to the contractor.

28. **CONTRACTOR'S ALL RISK POLICY:**

The contractor shall within 14 days from the date of commencement of the work insure the works at his cost and keep them insured until one month after the works are taken over by the Employer or three months after the date of completion whichever is earlier, against loss or damage by fire and usual risks other than fire against which insurers generally provide cover in a CONTRACTOR'S ALL RISK POLICY, with an insurer to be approved the by the Employer/ Architects, in the joint names of the Employer and contractor (the name of the former being placed first in the policy), progressively for the full amount of the contract, in three stages, beginning with 1/3 of the contract value, and for any further sum as called upon to do so by the Architect, with the prior written consent of the Employer, the premium of such further sum being allowed to the contractor as an authorised extra. Such policy shall cover the property of the Employer only and Architects and surveyor's fees for assessing the claim and in connection with his services generally in reinstatement and shall not cover any property of the contractor or any subcontractor or employee. The contractor shall deposit the policy and receipts for the premiums paid with the Architects/Employer, within twenty one days of the date of commencement of work, unless otherwise instructed, as provided above failing which the employer or the Architect on his behalf may insure and may deduct the premium paid from any money that may be due or that may become due to the contractor. The contractor shall as soon as the claim under the policy is settled, or the work reinstated by the insurers should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the fire or other such risk had not occurred and in all respects under the same conditions of contract.

The contractor in case of rebuilding or reinstatement after fire or other such usual risk shall be entitled to such extension of time for completion as recommended by the Architect.

29. **MINIMUM AMOUNT OF THIRD PARTY INSURANCE:**

Such insurance shall be effected with an insurer and in terms approved by the SBIIMS which approval shall not be reasonably withheld and for at least the amount stated below. The contractor

shall, whenever required, produce to the Architect/Consultant the policy or policies of insurance cover and receipts for payment of the current premium. The minimum insurance cover for physical property, injury, and death is Rs.5.00 lakhs per occurrence with the number of occurrences limited to four. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.

30. **COMMENCEMENT AND COMPLETION:**

The contractor shall be allowed admittance to the site on the "Date of Commencement" stated in the Appendix, and he shall thereupon and forthwith begin the works and shall regularly proceed with and complete the same (except such painting or other decorative work as the Architect may desire to delay) on or before the 'Day of Completion' started in the Appendix subject nevertheless to the provisions for extension of time hereinafter contained.

31. **DELAY AND EXTENSION OF TIME:**

If in the opinion of the Architect the works be delayed:

- a. by force majeure, or
- b. by reason of any exceptionally inclement weather, or
- c. by reason of proceedings taken on threatened by or dispute with adjoining or neighbouring owners or public authorities arising otherwise, than through the contractor's own default, or
- d. by the works or delays of the contractors or tradesmen engaged or nominated by the Employer or Architect and not referred to in the Schedule of Quantities and/or specifications, or
- e. by reason of civil, commotion, local combination of workmen or strike or lock-out affecting any of the buildings/traders, or
- f. by reason of the Architect's instructions as per clause 2, or
- g. In consequence of the contractor not having in due time, necessary instructions from the Architect, for which he shall have specifically applied in writing ahead of time, giving reasonable time to prepare such instructions.

The Architect shall make a fair and reasonable assessment for extension of time, for completion of the contract works which may be approved by the Employer.

In case of such strike or lock-out, the contractor shall as soon as possible, give written notice thereof to the Architect, but the contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably be required, to the satisfaction of the Architect to proceed with the work.

32. **DAMAGES FOR NON-COMPLETION:**

If the contractor fails to complete the works by the date stated in clause 30 (date of completion) or within any extended time certified

under clause 31 (extension of time) and if the Architect shall certify in writing on or before the date of issue of the certificate for the last payment to which the contractor may become entitled hereunder that the works could have been reasonably completed by the said date or within the said extended time, then the contractor shall pay to the Employer or allow the employer to recover from dues to the contractor on any account the sum stated (liquidated damages and not by way of penalty), subject to a maximum amount of 5% as stated in Appendix of General Conditions of contract and such damages may be deducted from any money due or which may become due to the contractor.

The deduction of such sums shall not, however, absolve the contractor of his responsibility and obligations to complete the work in its entirety.

**33. FAILURE BY CONTRACTOR TO COMPLY WITH ARCHITECT'S INSTRUCTIONS:**

If the contractor after receipt of written notice from the Architect requiring compliance with such further drawings and/or Architects instruction, fails within seven days to comply with the same, the Architect and Employer may employ and pay other persons to execute any such work whatsoever as may be necessary to give effect thereto and all costs incurred in connection therewith shall be recoverable from the contractors by the employer on a Certificate by the Architect as a debit or may be deducted by him from any money due or which may become due to the contractors.

**34. ARCHITECT'S DELAY IN PROGRESS:**

The Architect may delay the progress of the works in case of rains or otherwise, without vitiating the contract and grant such extension of time with the approval of the Employer for the completion of the contract as he may think proper and sufficient in consequence of such delay, and the contractor shall not make any claim for compensation or damage in relation thereto.

**35. SUSPENSION OF WORKS:**

If the contractor, except on account of any legal restraint upon the employer preventing the continuance of the works, or on account of any of the causes mentioned in the clause "Extension of time" or in the case of certificate being withheld or not paid when due, shall suspend works or in the opinion of the Architects, shall neglect or fail to proceed with due diligence in the performance of his part of the contract or if he shall more than once make default in the respects mentioned in clause 23 (removal of improper work and materials), the Employer through the Architect shall have the power to give notice in writing to the contractor required that the works be provided within a reasonable manner, and with reasonable despatch, such notice shall not be unreasonably given and must signify that it purports to be a

notice under the provisions of this clause and must specify the acts or defaults on the part of the contractor upon which it is based. After such notice shall have been given, the contractor shall not be at liberty to remove from the site of works, or from any ground contiguous thereto, the site of works, or from any ground contiguous thereto, any plant or materials belonging to him which shall have been placed thereon for the purpose of work, and the Employer shall have lien upon such plants and materials to subsist from date of such notice being given until the notice shall have been complied with, provided always that such lien shall not under any circumstances subsist after the expiration of 30 (thirty) day from the date of such notice given, unless the employer shall have entered upon and taken possession of the works and site, as hereinafter provided.

If the contractor shall fail for seven days after such notice has been given, to proceed with the works as therein prescribed, the Employer may enter upon and take possession of the works and site, and of all such plants, machinery and materials thereon intended to be used for the works, and the Employer shall retain and hold a lien upon all such plants, machinery and materials until the work shall have been completed, under powers hereinafter conferred upon him;

If the Employer shall exercise the above power, he may engage any other person to complete the works and exclude the contractor, his agents and servants from entry upon or access to the same, except that the contractor or any person appointed in writing may have access at all times during the progress of the works to inspect, survey and measure the works. Such written appointments or a copy thereof shall be delivered to the Architects before the person appointed comes on to the works and the Employer shall take such steps as in the opinion of the Architect may be reasonably necessary for completion the works, without undue delay or expenses using for that purpose the plant, machinery and materials above mentioned in so far as they as they are suitable and adopted to such use.

Upon the completion of the works, the Architects shall certify the amount of the expenses properly incurred consequent on and incidental to the default of the contractor as aforesaid and in completion the works by other persons.

Should the amount so certified as the expenses properly incurred be less than amount which should have been due to the contractor upon the completion of the works by him, the difference shall be paid to the contractor by the Employer, should the amount of the former exceed the later, the difference shall be paid by the contractor to the Employer. The Employer shall not be liable to make any further payments or compensations to the contractor for or on accounts of the proper use of the plant for the completion of the works under the provisions herein before mentioned other than such payments as is included in the contract.

After the works shall have been so completed by persons other than the contractor, under the provisions herein before contained, the Architect shall give notice to the contractor to remove his plants and all surplus materials as may not have been used in the completion of the works from the site.

If such plant and materials are not removed within a period of 14 days after the notice shall have been given, the Employer may remove and sell the same, holding the proceeds less the cost of the removal and sale, to the credit of the contractor. The Employer shall not be responsible for any loss sustained by the Contractor from the sale of the plant in the event of the Contractor not removing it after notice.

36. **PRIME COST AND PROVISIONAL SUMS:**

- a. Where "Prime Cost" (P.C.) prices or provisional sums of money are considered for any goods or works in the specifications or Schedule of quantities or deviations hereof, the same are exclusive of any trade discounts, or allowances, discount for cash, or profit which the contractor may require and or carriage and fixing.
- b. All goods or work, for which prime cost prices or provisional sums of money are considered may be selected or ordered from any manufacturer's or firms, at the discretion of the Architect or the Employer. The Employer reserves to himself the right of paying directly for any such goods or work and the Architect may deduct the said prices or sums from the amount of the contract. Should any goods or works for which prime cost prices or provisional sums are considered or portions of same be not required, such prices or sums, together with the profits allowed for such additional amount as the Contractor may have allowed for carriage and fixing will be deducted in full from the amount of the Contract. Whether the goods be ordered by the Contractor or otherwise, the contractor shall at his own cost fix the same, if called upon to do so, and the contractor shall also receive and sign for such goods and be responsible for their safe custody as and from the date of their delivery upon the works.
- c. In cases in which provisional quantities of items/materials are contained in the contract, the contractor shall provide such materials and or execute such items to such amounts or to greater or lesser amounts as the Architect shall direct in his schedule of quantities.
- d. No prime cost sum or sums (or any portion thereof) shall be included in any certificate for payment to the contractor until the receipted accounts relating to them have been produced by the contractor to the Architect. Such accounts shall show all discounts and any sum or sums in respect of such discounts shall be treated as a trade discount. Provided always, that should the contractor in lieu of producing such receipted accounts, request the Architect in writing to issue a certificate to the Employer for such sum or sums, due either on account or in settlement to a sub-contractor direct, the Architect shall, upon satisfying himself that the sub-contractor is entitled to

the same, so issue the certificate and such sum or sums be deducted from the amount of the contractor, at the settlement of accounts and any profit or sum to which the contractor is properly entitled, in respect of such sub-contract, and which is in conformity with the terms of contract as though the amount of such certificates to the sub-contractor has been included in a certificate drawn in favour of the contractor.

- e. If the contractor neither produces the receipt nor gives authority to the Architect to issue a certificate in favour of such sub-contractor direct, the Architect may upon giving the contractor SEVEN DAYS NOTICE in writing of his intentions to do so, issue to the sub-contractor such certificate direct to the Employer and obtain a receipt from the sub-contractor, which receipt shall be deemed as a discharge for the amount of such certificates, as though given by the contractor. In such event, the contractor shall not be allowed any profit he may have added in the Schedule of Quantities upon such sub-contract.
- f. The exercise of the option before referred to by the Contractor and the issue of certificates, as before described to sub-contractor direct of certificates by the Architect, shall not however, relieve the contractor from any of the liabilities in respect of insufficient, faulty or incompleting work of the sub-contractor for which he may be liable under the terms of the contract.

37. **CERTIFICATES AND PAYMENTS:**

The contractor shall be paid by the Employer after due checking and after making necessary correction from time to time, by instalments under Interim Certificates to be issued by the Architect on account of the works executed by the contractor based on the joint measurements taken by the PMC, the Architects representative and the contractors representative when in the opinion of the Architect, work to the approximate value named as "Value of work for Interim Certificates", (or less at the reasonable discretion of the Architect & Employer) has been executed in accordance with the Contract, subject however, to a retention of the percentage of such value named in the Appendix hereto mentioned as "Retention Percentage for Interim Certificates", until the total amount retained shall reach the sum named in the appendix as Total Retention Money, after which time the instalments shall be upto the full value of the work subsequently so executed plus such amount as he may consider proper on account of materials delivered upon the site by the contractor for use in the work and available on the date of billing.

And when the works have been virtually completed and the Architect shall have certified in writing that they have been so completed, the contractor shall be paid by the Employer after satisfying himself in accordance with the certificate to be issued by the Architect, the sum of money named in the Appendix as 'Instalment after Virtual Completion' being a part of the said Total Retention Money.

The Contractor shall be entitled to the payment of the final balance (balance security deposit/retention money) in accordance with the final certificate to be issued in writing by the Architect at the expiration of the period referred to as 'The Defects Liquidation Liability period' in appendix on page 10 hereto, from the date of virtual completion or as soon after the expiration of such period as the work shall have been finally completed and all defects made good according to the true intent and meaning hereof, whichever shall happen, provided always that the issue by the Architect of any Certificate during the progress of the works or after the completion shall not relieve the contractor from his liabilities in cases of fraud, dishonesty or fraudulent concealment relating to the works or materials or any matter dealt within the certificate, and in case of all such defects and insufficiencies in the works or materials, which reasonable examination would have disclosed. No certificate of the Architect shall by itself be conclusive evidence that any works or materials to which it relates are in accordance with the contract.

The Architect shall have power to withhold any Certificate, if the works or any parts thereof are not being carried out to his and employers satisfaction. The Architect may by any certificate make any correction in any previous Certificate, which shall have been issued by him. Payment upon the Architect's Certificates shall be made within the period named in the Appendix as 'Period of Honoring of Certificates, after such certificates have been delivered to Employer.

38. **NOTICES:**

Notices for the Employer, the Architect, or the Contractor may be served personally or by being left at or sent by registered post to the last known place of abode or business of the party to whom the same is to be given or in the case of the contractor by being left on the works. In case of a company or corporation, notices may be served at or sent by registered post to the Registered Offices of the Company or Corporation. Any notice sent by registered post shall be deemed to be served at the time, when in the ordinary course of post it would be delivered.

## **7. INDEX TO SPECIAL CONDITIONS OF CONTRACT**

1. Inspection of drawings
2. Contractor to visit site
3. Execution of work (Prices to include)
4. Schedule of Quantities
5. Quantities liable to alterations
6. Filling of tenders
7. Access for inspection
8. Dimensions
9. Program of works
10. Offices, Stores, Sheds etc.
11. Water and Electricity
12. Procurement of materials
13. Sanitary Accommodation in Site
14. Facilities to other contractors
15. Testing
16. Site meetings
17. Custody and security of materials
18. Notices
19. Statutory regulations
20. Measurements to be recorded before work is covered up.
21. Working at night or on holidays.
22. Working on holidays
23. Action where there is no specification
24. Reporting of accident
25. Cleaning the site on completion/determination of work
26. Possession of buildings/work completed
27. Typographic, Clerical and other errors.
28. Information to be supplied by the Contractors.



29. Force Majeure
30. Architect's drawings and instructions
31. Completion of work and liquidated damages
32. Bill of payments
33. Workmanship
34. Schedule of quantities
35. Site Supervision
36. Engagement of Apprentices
37. Rates
38. Income tax
39. Extra items rates
40. Service drawings/shop drawings/catalogue
41. Payment
42. Permission
43. Maintaining Registers at site
44. Agreement
45. Insurance
46. Indebtedness and liens
47. Work performed at contractor's risk
48. Photographs
49. Inspection by the Chief Technical Examiner
50. Special conditions of contract
51. B.I.S. Codes
52. As Built Drawings

## **8. SPECIAL CONDITIONS OF CONTRACT**

### **1. INSPECTION OF DRAWINGS:**

Before filling in the tender, the contractor will have to check up all drawings and Schedule of quantities, and will have to get immediate clarifications from the Architect on any point, that he feels is vague or uncertain. No claim/damages or compensation will be entertained on this account.

### **2. CONTRACTOR TO VISIT SITE:**

Each tenderer must, before submitting his tender, visit the site of works, so as to ascertain the physical site conditions prices and availability and quality of materials according to specifications before submitting the quotations. No excuse regarding non availability of any materials or changes in the price will be entertained or extra allowed on that account.

The existing adjacent buildings belonging to Govt/private which are in close proximity of the proposed Interiors, hence the contractor shall cater for all arrangements to carry out the work without causing any disturbance to the occupants by providing screens with bamboo matting or other suitable material approved by Architects/Engineer. The contractor shall ensure that no dust or construction material falls near/around the existing buildings.

### **3. EXECUTION OF WORK (PRICES TO INCLUDE):**

i) The whole of the work as described in the Contract (including the Schedule of Quantities, the specifications and all drawings pertaining thereto) and as advised by the Architect & employer from time to time is to be carried out and completed in all its parts to the entire satisfaction of the Architect & Employer. Any minor details of construction, which may not have been definitely referred to in this contract, but which are usual in sound building, road and all construction practice and essential to the work, are deemed to be included in this contract. Rates quoted in the Tender is inclusive of transportation and other over heads.

The rates quoted in the tender should also include all charges for:

- a)
  - 1. Carrying
  - 2. Hauling
  - 3. Labour
  - 4. Fixing
  - 5. Watering
  - 6. Cleaning
  - 7. Making good and
  - 8. Maintenance etc.

- b) The contractor should arrange timely at his cost for all required.

- i) Plant, machinery, scaffolding, formwork, ladders, ropes, nails, spikes, shuttering, temporary supports, platforms, tools, all materials etc., required for executing the work, and protecting them from weather and other normal/natural causes.
- ii) Covering/protecting for the walling and other works, during inclement weather, strikes etc., as and when necessary and or as directed.
- iii) All temporary canvas covers/covering, lights, tarpaulin, barricades, water shoots etc.
- iv) All stairs and steps, thresholds and any other requisite protection for the works.
- v) All required temporary weather-proof sheds at such places and in a manner approved by the Architect, for the storage and protection of materials, against the effects of sun and rain.
- vi) All required temporary fences, lighting/sign-boards etc., guards, approaches and roads as may be necessary for execution of the contract works and for safeguarding the public.
- c) The Architect & Employer will be the sole judge in deciding as to the suitability or otherwise of the tools/formwork/machinery or plant that may be brought to the work site by the contractor for the proper execution of the work.
- d) The rates quoted by the tenderer in the Schedule of Probable items of work will be deemed to be for the finished work.

#### 4. **SCHEDULE OF QUANTITIES:**

The Schedule of quantities forms part of the contract, but the Employer reserves the right to modify the same or any part thereof as per variation clause stated herein below. The contractor shall not be allowed any compensation or damages for the work which is so omitted or cancelled or added or substituted by the Architect & Employer.

Please refer clause 4 of General Conditions of Contract.

#### 5. **QUANTITIES LIABLE TO VARY:**

This clause applies for unlimited variations (+ or -) for items of foundations and those executed below plinth level. For all other items, only in case where + variations of any item exceeds 100% of Quantities of respective items given in the schedule of quantities of the contract, such additional quantities of those items shall be treated as extra items and valued as per clause 45 of special conditions of

contract, considering of that rates for these items cannot be derived from the contracted items of work.

The quantities indicated in the bill of quantities are only approximate, and hence may vary on either side (+ or -) for accomplishing the works enunciated under the scope of works, in accordance with designs, drawings and specifications and or instructions of the Architect & Employer. Variations may also occur, consequent upon addition or deletion or substitution of particular items, change of designs or specifications during the course of execution. The contractor, in either case, is bound to carry out the modified quantities upto +100% (plus one hundred percent) variation, without any enhancement in rates and at the same rates as per accepted original tendered rates.

Please refer clause 4, 5 & 6 of General conditions of contract.

6. **FILLING OF TENDERS:**

The rates and amounts for each tendered item should filled in separate columns provided for in the Schedule of quantities and all the amounts should be totaled up in order to show the aggregate value of the entire tender. All rates shall be filled in both words and figures. These figures and words shall be preceded by 'Rs' and 'Ps' as the case may be, and while filling in words, must end with "Only". Example:

- i) Rs.15.25 (Rupees fifteen and paise twenty five only)
- ii) Rs.20.00 (Rupees twenty only)

The rates quoted in figures should be clearly show the rates in full. While filling rates in words, each line should end in '-', and if continued further, last line for the rate of each item shall end in "Only". All corrections, by the contractor in the tender schedule shall be duly attested by the initials of the tenderer. Corrections which are not attested or overwritings in rates may entail the rejection of the tender.

In case the rate written in figures/words/amount differ, the following procedure shall be followed:

- a) When there is a difference between the rates in figures and in words, the rates which correspond to the amounts worked out by the contractor will be taken as correct.
- b) When the amount of an item is not worked out by the contractor or it does not correspond with the rate written either in figures or in words, then the rate quoted by the contractors in words shall be taken as correct.
- c) When the rates quoted by the contractor in figures and in word tallies but the amount is not worked out correctly, the rate quoted by the contractor shall be taken as correct and not the amount.

7. **ACCESS OF INSPECTION:**

The contractor is to provide at all times, during the progress of the works and the maintenance period, means of access with ladders, gangways etc., and the necessary attendants to move and adopt the same as directed for the inspection or measurement of the work by the Architect and Employer or any other agency employed by the client.

8. **DIMENSIONS:**

In all cases figured dimensions are to be accepted in preference to scaled sizes. Large scale details shall take precedence over small scale details/drawings. In case of any discrepancy, the contractor shall ask for a clarification, before proceeding with the work. Accordingly, if any work is executed without prior clarification, it is liable to be rejected and shall not be paid for,

9. **PROGRAMME OF WORKS:**

The contractor on starting the work shall furnish to the Employer and Architect a PERT/CPM programme, for carrying out the work stage by stage in the stipulated time, for the approval of Architects and Employer, and follow strictly the approved time schedule by incorporating changes, if any, so authorised by the Architect and Employer, to ensure the completion of construction work in stipulated time. A graph or chart on individual item/group of items/trades of work shall be maintained, showing the progress both in terms of quantities and value, week by week. The contractor shall submit to the Employer and Architect a weekly progress report stating the number of skilled and unskilled labourers employed on the work, working hours done, quantity of cement, steel and other major items of materials (quantity and value wise) used and corresponding place, type and quantity of work done during the period.

The contractor must inform the Architects, 10 days in advance of requirement of respective drawings and details by him, from time to time. The contractor shall strictly adhere to the approved programme and arrange for the materials and labour etc., accordingly.

Despite repeated instructions, if the contractor fails to show satisfactory progress of the work, the Employer/Architect may take suitable action as deemed fit, including levying of liquidated damages not exceeding ½% of contract price for delay of every week or part thereof, subject to a limit of total liquidated damages levied under this clause to 5% of contract price without prejudice to any terms and conditions of the contract.

10. **OFFICES, STORES, SHEDS ETC., ON THE SITE:**

- a. The contractor shall provide for all necessary storage on the site, in a specified area for all materials, in such a manner that all such materials, tools etc., shall be duly protected from damages by weather or any other cause. Stores for storage of cement shall have

all weather proof floors, walls and roof and have proper locking arrangements and must be secure. All these must be maintained till the work is completed and so certified by the Architect. Necessary and adequate watch and ward for all such accommodations and stores shall be provided for by the contractor at his cost and same included in the rates/amounts quoted by him. All such stores shall be cleared away and the ground left in good and proper order on completion of this contract unless otherwise expressly mentioned herein.

- b. All materials which are stored on the site such as plywood, false ceiling material etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials and prevent deterioration in quality due to water etc.

**11. WATER AND ELECTRICITY:**

Contractor shall make his own and adequate arrangements for water required for drinking and construction purposes and also for required electric supply at site for satisfactory execution and completion of the work, at his own cost. The contractor shall get the water used for construction purpose tested periodically as per relevant BIS codes at his cost, and shall get the same approved from Architect and clients before using such water for the work.

**12. PROCUREMENT OF MATERIALS:**

Contractor shall procure all the materials for the work from the open market. Time is the essence of the contract. Acceptance of the completion date by the contractor shall mean that he has taken into consideration the availability of all materials of approved make and quality in sufficient quantities at respective markets/sources, to enable him to complete the entire work in the stipulated period.

Contractor will get samples of all materials approved by the Architect and employer, before placing order/purchase/procurement. They shall conform to relevant B.I.S. codes and or tender specifications as applicable.

For all materials, the contractor shall quote for the best quality of the materials of best make/source or supply and they should be got approved by the architect and employer, before procurement.

In case sufficient quantities of approved quality materials from approved sources are not available in time, contractor may have to procure the same from neighbouring areas even with longer leads, as required and directed, at no extra cost.

Please refer clause 9 of General Conditions of contract.

**13. SANITARY ACCOMMODATION IN SITE:**

The contractor shall provide and maintain at his own cost and expense adequate closet and sanitary accommodation for the use of

his workmen and others in accordance with the rules and regulations of the relevant local authorities.

14. **FACILITIES TO OTHER CONTRACTORS:**

The contractor shall give full facilities and co-operation to all other contractors working at site doing plumbing, Electrical, civil works etc., as directed by the Architect & Employer and shall arrange his programme of work, so as not to hinder the progress of other works. The decision of the Architect & Employer, on any point of disputes between the various contractors, shall be final and binding on all parties concerned.

15. **TESTING:**

The contractor shall, as and when directed by the Architect & Employer, arrange to test materials and/or portions of the work at site in any approved laboratory at his own cost, in order to provide their soundness and efficiency. The contractor shall transport all the materials from site to the approved laboratory at his own cost. The contractor shall carry out all the mandatory tests as per list attached at the frequencies stated therein. Even after such tests, any materials brought to site or incorporated in the works are found to be defective or unsound or not as per approved samples, the contractor shall remove the same and re-erect at his own cost and without any additional time/period for the same, with reference to the date fixed for completing the work. In case these tests are not carried out at the frequencies stated, then proportionate costs of materials not so tested, including cost of testing and quantities of items of work executed with such materials, if otherwise accepted for retention in the work, will be deducted from the dues to the contractor. The deductions will be worked out by the Architect/client and shall be final and binding on him.

Tolerance on various material and items of work shall be allowed laid down in the documents below and the order of precedence shall be:

- a) Relevant Indian Standards Specifications.
- b) CPWD norms.
- c) Manufacturer's Specifications.

In absence of above Architect's decision basing on the general practice being following shall be final.

16. **SITE MEETINGS:**

A senior representative of the contractor shall attend weekly meetings at works site; and in additions, meetings as and when arranged by Architect & Employer to discuss the progress of the work and sort out problems, if any, and ensure that the work is completed in the stipulated time.

**17. CUSTODY AND SECURITY OF MATERIALS:**

The contractor shall be responsible for the custody and security of all materials and equipment at site and he will provide full time watchman/watchmen to look after his materials, stores, equipments etc., including cement and steel at site and ensure that at no time unauthorised persons gains any access at works site.

**18. NOTICES:**

The contractor shall give all notices and pay all necessary and relevant fees and shall comply with all Acts and Regulations, for the successful completion of the contract work.

**19. STATUTORY REGULATIONS:**

The whole of the work including sanitation and electrical is to be complied with, as per the requirements and bylaws of the relevant statutory authorities, including Contract Labour (Regulation and Abolition) Act, 1970 of Central Government.

**20. MEASUREMENT TO BE RECORDED BEFORE WORK IS COVERED UP:**

The contractor shall take joint measurements with the Employer's representative (Project Management Consultant or any Engineer identified by the Bank) and Architect's representative before covering up or otherwise placing beyond the reach of measurement any item of work. Should the contractor neglect to do so, the same shall be uncovered at the contractor's expense or in default thereof, no payment or allowance shall be made for such work or the materials with which the same was executed.

**21. WORKING AT NIGHT OR ON HOLIDAYS:**

The contractor can carry out major work at night, only with prior permission of the Site Engineer of Employer/Architect and with proper supervision. However, all concrete work will be carried out only during the day light.

**WORKS AT NIGHT:**

If the contractor is required to do preliminary works at night, in order to complete the work within the Time Schedule, the contractor shall provide and maintain at his own cost necessary and sufficient barricades/lights etc., to enable the work to proceed satisfactorily without danger. Approaches to the site also shall be sufficiently lighted by the contractor.

**22. WORKING ON HOLIDAYS:**

No work shall be done on Sunday or other Bank holidays that may be notified by the Architect & Employer, without the specific sanction in writing of the Architect & employer or his representatives.

**23. ACTION WHERE THERE IS NO SPECIFICATION:**

In case of any item/class of work, for which there is no specification mentioned (either in part or full), the same will be carried out in



accordance with the relevant CPWD specifications (only for the specifications missing in the contract) and if not available even there (either in part or full) in, relevant standards of BIS shall be followed (only for the portions of specifications missing in the contract specifications and CPWD specifications). Indian standard specifications, subject to the approval of the Architect & Employer.

**24. REPORTING OF ACCIDENT TO:**

The contractor shall be responsible for the safety of all persons employed by him on the works and shall report serious accidents to any of them, whenever and wherever occurring on the works, to Employer who shall make every arrangement to render all possible assistance. This shall be without prejudice to the responsibility of the Contractor, under the Insurance clause of the General Conditions. Contractor shall take all the precautions as detailed in the safety code attached separately.

**25. CLEARING THE SITE ON COMPLETION/DETERMINATION OF WORKS:**

The contractor shall clear the site of works as per the instructions of the Architect. The site of works shall be cleared of all men, materials, sheds, huts etc., belonging to the contractor. The site shall be delivered in a clean and neat condition, as required by Architect, within a period one week after the job is completed. In case of failure by the contractor, the Employer, under advice to the Architect, have the right to get the site cleared to his satisfaction at the risk and cost of the contractor.

**26. POSSESSION OF BUILDINGS/WORK COMPLETED:**

The contractor shall hand over to the Employer possession of the completed works in stages, as and when required, and as directed by the Architect & Employer.

The Employer will take over the possession of completed works in stages as directed by the Architect, and defects liability period will commence only from the date of final handing over of all the work accordingly.

**27. TYPOGRAPHIC, CLERICAL AND OTHER ERRORS:**

The Architects/Employer's clarification regarding partially omitted particulars or typographical, clerical and other errors shall be final and binding on the contractors.

**28. INFORMATION TO BE SUPPLIED BY THE CONTRACTOR:**

The contractor shall furnish to the architect & Employer the following from time to time:

Detailed industrial statistics regarding the labour employed by him, etc., every month (within 5th of succeeding month),

The Power of Attorney, name and signature of his authorised representative, who will be in charge for the execution of work.

The list of technically qualified persons (to be approved by the Architect) employed by him for the execution of the work within 15 days from date of start of work,

The total quantity and quality of materials used for the works, every month within 5th of succeeding month.

Failure to submit any of these details in time, shall be treated as a breach of the contract and likely to result in,

i) Levying a fine of Rs.500 for each default for each month, and or

ii) Withholding payments, otherwise due.

iii) For the periods for which name of technically qualified persons are not given or for which such persons are not employed, recoveries shall be made at Rs.7,500/- per month for each month of default.

In all these matters the decision of the Architect shall be final and binding.

29. **FORCE MAJEURE :**

Neither party shall be held responsible by the other for breach of any condition of this Agreement, attributable to any "Act of God", Act of State, Strike, lock-out or control or any other reason, beyond the control of the parties and any breach of clauses arising from such Force Majeure conditions as aforesaid shall not be regarded as breach of the provisions of this Agreement.

30. **ARCHITECT'S DRAWINGS AND INSTRUCTIONS:**

A set of major drawings, along with the contract documents shall be provided to the contractor. If any clarification or further drawings are required by the Contractor during or before the start of construction work, the contractor shall inform the Architects and the SBIIMS sufficiently in advance in writing to provide the same. Working details will be given to the Contractor from time to time, during the progress of work, as and when required. In case, any other drawing/detail is required by the contractor, he will give a minimum of fifteen days notice to the Architect.

31. **COMPLETION OF WORK AND LIQUIDATED DAMAGES:**

The work shall be completed in 60 DAYS, and reckoned as under:  
The 3 DAYS from the date of issue of work order.

or

The day on which the contractor receives the possession of the site - whichever is later.

or

The contractor is asked in writing to take over the possession of the site.

Time is the essence of the Contract. The Contractor shall strictly adhere to the programme/chart agreed to. In case the contractor fails to complete the work as mentioned above, the liquidated damages may be imposed at the rate of 0.5% per each week (or part thereof) of delay, subject to a maximum of 5% of contract amount.

Refer clause 30, 31 & 32 of General Conditions of contract.

**32. BILLS OF PAYMENTS:**

The minimum value of work for interim payments will be Rs. 20.00 lakhs, as stated in Appendix. The contractor shall submit interim bills, once a month on the basis of joint measurements recorded at site by the contractor's Employer's and the Architects representatives. The bill will be certified by the Architect within 15 working days from the date of submission of the bill by the contractor, and the Employer will make payment as stated in the Appendix to General Conditions of Contract. All such interim payments shall not be considered as an admission of the due performance of the contract or any part thereof in any respect 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 at contractor's cost, all as per Employer and Architect's instruction and directions.

**33. WORKMANSHIP:**

Quality of materials and workmanship shall conform strictly to specifications given/stipulated in the tender/contract, and contractor will ensure that the best quality of work will be done to the satisfaction of the Architect and Employer, with strict control on the materials, workmanship and supervision.

**34. SCHEDULE OF QUANTITIES:**

Quantities mentioned in the Schedule of Quantities, included in the contract, are approximate and are subjected to variations as per actual site conditions & requirements and as directed by the Architect & Employer. The work shall be executed and completed accordingly.

**35. SITE SUPERVISION:**

The contractor shall appoint at his own cost competent and adequate number of qualified Engineers at site, for (1a) joint measurements and preparations of bills. (2b) for testing materials at site and

outside laboratory. (c) for concreting and reinforcement work. (d) for other general supervision. Their appointment shall be approved by the Architect & Employer. The site engineers shall not be removed from the site without the written consent of the Architect & Employer.

**36. ENGAGEMENT OF APPRENTICES:**

The Contractor shall during the currency of the contract, when called upon by the clients, engage and also ensure engagement by sub-contractors and others employed by the contractor in connection with the works such number of apprentices in the categories mentioned in the act and for such period as may be required by the clients. The contractor shall train them as required under the Apprentice Act 1961 and the Rules made thereunder and shall be responsible for all obligations of the clients under the said Act, including the liability to make payment of apprentices, as required under the said Act.

**37. RATES:**

Contractor shall quote all the rates both in figures and in words and any alterations shall have to be initialled by the contractor. Rates quoted by the contractor for the same item in different schedules shall be same, and incase different rates are quoted, the lowest will be taken as correct and the schedule corrected accordingly. In case of discrepancy between rates given in words and figures or in the amount worked out, the following procedure will be followed:

In case of item rate tender:

The tenderers shall quote their rates for individual items both in words and figures in case of discrepancy between the rates quoted in words and figures the unit rate quoted in words will prevail. If no rate is quoted for a particular item the contractor shall not be paid for that item when it is executed.

The amount of each item shall be calculated and the requisite total is given. In case of discrepancy between the unit rate and the total amount calculated from multiplication of unit rate and the quantity the unit rate quoted will govern and the amount will be corrected.

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 / SBIIMS.

**38. INCOME TAX:**

Income tax shall be deducted at source by the client from the contractor's interim and final bill payments as required by law.

### **39.EXTRA/SUBSTITUTED ITEM RATES:**

Such items shall be executed as per directions/instructions of the Architects of the employer.

The work on extra/substituted items shall be started only after the receipt of written order from the client/Architect. Rates for additional/extra or substituted (altered) items of work, which are not covered in the contract cannot be derived from the contract item rates either in full or partly, shall be calculated on the basis of actual costs plus 15% for overhead and profit etc., only to the extent not derivable from the contract item rates.

### **40. SERVICES DRAWINGS/SHOP DRAWINGS/CATALOGUE:**

After getting approval from the Architect & Employer, the contractor shall submit to the concerned local authorities necessary services drawings showing layouts etc., for getting approval of the schemes. On completion, the contractor shall arrange to get Drainage Completion Certificate and other Certificate necessary for obtaining Building Completion certificate. The contractor shall furnish completion drawings of all services in triplicate, showing the work as actual executed, along with levels. Contractor shall submit for approval 4 copies of shop drawings/ catalogue/ equipment characteristics/ manufacturer's specifications, drawings etc., as and when required and directed by the Architect & Employer. Costs of all these are deemed to have been included in the respective item rates quoted by the contractor and nothing extra shall be paid on account of any of these requirement/acts.

### **41. PAYMENT:**

No payment whatsoever shall be made by the Employer, if the Contractor abandons the work, due to any site difficulties etc.,

### **42. PERMISSION:**

The contractor shall also obtain necessary permission approvals from the relevant authorities shall be obtained by the contractor at no extra cost.

### **43.MAINTAINING REGISTERS AT SITE:**

The contractor shall maintain registers for consumption of various specials, testing of materials etc., in the proforma which shall be given by the Architect & Employer from time to time.

### **44.AGREEMENT:**

The successful contractor shall be required to enter into an agreement in accordance with the Draft Agreement and Schedule of Conditions etc., within 15 days from the date the contractor is advised by the Architect & Employer that his tender has been accepted. The contractor shall pay for all stamps and legal expenses incidental thereto. However, the written acceptance of the tender by the Employer, will constitute as a binding contract between the Employer

and contractor, whose tender has been accepted, whether such formal agreement is or is not subsequently executed.

#### **45.INSURANCE:**

The contractor shall provide insurance in respect of damage to persons and property and firm insurance as per clause 27 and 28 of General conditions of contract. In addition he will also insure against riots and civil commotion. The insurance shall also cover third party and all the persons working at site and visitors including contractor's, worker's, Architect's and clients people, other contractor's workers etc. The contractor shall indemnify the Employer against any claim or compensation or mishaps of whatsoever nature at site during the progress of work.

The contractor shall prove to the Architect/Client from time to time that he has taken out all the insurance policies as required and directed and has paid the necessary premium for keeping the policies valid as per clause 27 & 28 of the General Conditions of Contract.

In case of failure by the Contractor or sub-contractor to effect and keep in force the insurance policies, then the client, without being bound to, may pay such premiums as may be necessary and deduct the same from any money due or which may become due to the contractor or recover the same as a debt due from the contractor.

#### **46.INDEBTEDNESS AND LIENS:**

The contractor agrees to furnish the Employer from time to time, during the progress of the work as requested, verified statement showing the contractor's total outstanding indebtedness in connection with the work covered by the contract. Before final payment is made, the Employer may require the contractor to furnish the Employer with satisfactory proof that there are no outstanding debts or liens in connection with the contract. If during the progress of the work, the contractor shall allow any indebtedness to accrue to sub-contractor or other and shall fail to pay or discharge same within five (5) days after demand, then the Employer may withhold any money due to the contractor until such indebtedness is paid, or apply the same towards the discharge thereof.

#### **47. WORK PERFORMED AT CONTRACTOR'S RISK:**

The contractor shall take all precautions necessary and shall be responsible for the safety of the work and shall maintain all lights, guards, signs, barricades, temporary passages or other protection necessary for the purpose. All work shall be done at the contractor's risk and if any loss or damage shall result from fire or from any other cause, the contractor shall promptly repair or replace such loss or damage free from all expenses to the Employer. The Contractor shall be responsible for any loss or damage to materials, tools or other articles used or held for use in connection with the work. The work shall be carried on to Employer or of others and without interference with the operation of existing machinery or equipment, if any.

**48. PHOTOGRAPHS:**

The contractor at his own cost shall take photographs of site and individual buildings during the progress of the work as directed by the Architect/Client and submit two copies of each photograph with minimum size 20 cm x 15 cm to the client/Architect.

**49. INSPECTION BY THE CHIEF TECHNICAL EXAMINERS (VIGILANCE):**

The proposed work covered under this tender, during the progress and/ or after completion, can also be inspected by the Chief Technical Examiner/ Technical Examiner or Officers of the Central Vigilance Commission, Government of India, on behalf of Architect & Employer to ascertain that the execution of the work has been done with materials and workmanship all as stipulated in the contract and as directed.

Contractor shall afford all reasonable facilities to the above vigilance staff and also provide them with ladders, tapes, plum bob, level etc., as required and directed and also necessary labourers skilled/unskilled to enable them to complete their inspection/study/technical scrutiny and no extra shall be admissible to the contractor on this account.

**50. SPECIAL CONDITIONS OF CONTRACT:**

In the event of any discrepancy with clauses mentioned anywhere else in the tender with the clauses mentioned within special conditions of contract, the clauses mentioned within the special conditions of contract shall supersede there mentioned elsewhere.

**51. BIS CODES**

It is compulsory for the contractor to keep all the B.I.S. codes mentioned in this tender document at his cost at the site to ensure the proper supervision/quality of work and materials.

**52. AS BUILT DRAWINGS**

The contractor shall prepare and submit a set of as-built drawings, duly certified by the Architect. The set consists of 2 soft copies and 3 sets of hard copies.

## **9. GENERAL AND TECHNICAL SPECIFICATIONS**

1. These specifications are for the work to be done, items to be supplied and materials to be used in the works as shown and defined on the drawings and described herein all under the supervision and to the satisfaction of the Consultant/Bank.
2. The workmanship is to be the best available and of a high standard, use must be made of 'specialist' tradesman in all aspects of the work and allowance must be made in the rates for doing so.
3. The materials and items to be provided by the contractor shall be the best of their respective kinds and as approved by the consultant/Bank in accordance with samples, which may be submitted for approval and generally in accordance with the specifications.
4. Samples of all materials including those specified by name of the manufacturer or the brands, trade name or the Consultant/Bank for their approval before the contractor either orders or delivers in bulk to the site. Samples together with their packings are to be provided by the contractor free of any charge and should any materials be rejected, the same will be removed from the site at the expenses of the contractor.
5. The contractor is also required to submit specimen finishes of all colours, fabrics, polish shades, etc., for approval of the Consultant/Bank before proceeding with such works.
6. Should it be necessary to prepare shop drawings, the contractor at his own expenses prepare and submit at least four sets of such drawings to Consultant/ Bank for approval.
7. The contractor shall produce all invoices, vouchers or receipts account of all purchases done by him for materials if called upon to do so either by consultants or the Bank.
8. The contractor should verify all measurements given in the drawing at the site before commencing the work. Any difference should be clarified with the Consultant before commencing the work.
9. Partition line out shall be done at the site before starting the work and got approved from the Consultants.
10. The contractor shall submit Bar chart (CPM Method) for the complete work within one week of letter of acceptance of tender and get the same approved from Consultant/Bank. In advance to co-ordinate the work with other agencies.
11. In order to complete the work in time, the contractor may have to work in more than one shift and beyond office hours. He will do so



without any extra charges and without causing any disturbance/inconvenience to the neighbourhood.

12. The contractor shall make necessary security arrangements at the site for the safety of his tools, materials and equipment etc., at his own cost.
13. The contractor shall quote his rate including the cost of materials as specified, corresponding wastages, labour, sales tax or any other taxes and duties, octroi, transportation to worksite etc.

The rates are firm and no escalation on any account shall be allowed on accepted rates.

14. The contractor shall be responsible for providing and maintaining temporary coverage required for the protection of dressed, finished or semi-finished works if left unprotected. He is also to clean out all shavings, cut ends and other wastages from all parts of the work at his expenses.

15. **List of Indian Standards referred to:**

IS : 1200 : Latest      Measurements of buildings & Civil Engineering works

IS : 287 - 1973      Recommendation for maximum permissible Moisture content of timber.

IS : 1141 - 1973      Code of practice for seasoning of timber.

IS : 3845 - 1966      Code of practise for joints used in wooden furniture.

IS : 3548 - 1966      Glazing in Buildings.

IS : 1137 - 1965      Specification for ready mixed paint brushing  
IS : 113 - 1950      matt or egg shell flat/wooden coating under-  
IS : 133 - 1975      coating/finishing, Grey filler etc., for  
IS : 110 - 1968      interiors.  
IS : 129 - 1950

IS : 1948      Aluminium doors, windows & partitions.

18. **Inspection and Testing:**

The Consultant/Bank shall be entitled at all times at the risk of contractor to inspect and/or test by itself or through an independent agency appointed by the Bank to inspect, and/or test all the materials, components, and items of work at the expenses of the contractor. All such tests shall be done as per ISI guidelines and as directed by Consultants/Bank.

### **SAFETY CODE**

Suitable scaffolds should be provided for workman for all the works that cannot safely be done from the ground or from solid construction, except in cases of short duration works, which can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, it shall be of rigid construction made either of good quality wood or steel. The steps shall have a minimum width of 450mm and a maximum rise of 300mm. Suitable foot and hand holds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than 1 in 4 (1 horizontal to 4 vertical).

Scaffolding or staging more than 300mm above the ground or floor, swung or suspended from an overhead support, shall be erected with stationery supports and shall have guard rails properly attached, bolted, braced and otherwise secured and atleast 900mm high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends there of with only such openings as may necessary for the access of persons and delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform or the gangway or the stairway is more than 3-6m above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened, as described in (ii) above.

Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing, whose minimum height shall be 900mm.

Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 M in length while the width between side rails in ring ladder shall be in no case be less than 300mm. For longer ladders, this width should be increased atleast 6mm for each additional foot of length. Spacing of steps shall be uniform and shall not exceed 300mm.

Adequate precautions shall be taken to prevent danger from electrical equipment. At the work site, no materials shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall also provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay damages and costs, which may be awarded in such suit, action or proceedings to any such persons or which may with the consent of the contractor be paid to compromise any claim by any such person.

II. Demolition:

Before any demolition work is commenced and also during the progress of the work.

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

III. All necessary personal safety equipments as considered adequate by the Architects should be kept available for the use of the persons employed on the site and maintained in a condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipment by the concerned.

- a. Workers employed in mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- b. Those engaged in white washing and mixing or stacking of cement bags or any materials which is injurious to the eyes shall be provided with protective goggles.
- c. Those engaged in welding works shall be provided with welder's protective (eye) shields.

Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

- e. When workers are employed in sewers and manholes, which are in use, the contractor shall ensure that the manhole covers are opened and are ventilated atleast for an hour before the workers are allowed to get into the manhole and the manholes so opened shall be cardoned off with suitable railing and provided with warning signals or boards to prevent accidents to the public.
- f. The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 years are

employed on the work of lead painting, the following precautions should be taken.

- i) No paint containing lead or lead products shall be used except in the form of paste or ready made paint.
- ii) Suitable face masks should be supplied for use to the workers when paint is applied in the form of spray or a surface having lead paint is rubbed and scrapped.
- iii) Overalls shall be supplied by the contractors to the workers and adequate facilities for washing shall be provided to the working painters during and on cessation of work.

IX. When the work is done near any place, where there is risk of drowning, all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

X. Use of hoisting machine and shackle including their attachments, in charge and supports shall conform to the following standards or conditions.

- 1.a. These shall be of good mechanical construction, sound material and adequate strength and free from any patent defects and shall be kept in good working order.
- b. Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.
- 2. Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding or give signals to the operator.
- 3. In case of every hoisting machine and of every chain, ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
- 4. In case of departmental machines, the safe working load shall be notified by the clients. As regards contractor's machines the

contractor shall notify the safe working load of the machines to the consultants, whenever he brings any machinery to site of work and get it verified by the consultants.

- XI. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce and minimise the risk of accidental descent of loads. Adequate precautions should be taken to reduce to the minimum risks of any part of a suspended load becoming accidentally displaced. Sleeves and boots as may be necessary should be provided, whenever workers are employed on electrical installations. The workers should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.
- XII. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition. No scaffold, ladder, or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near place of work.
- XIII. To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the clients or the Architect.
- XIV. These safety provisions should be brought to the notice of all concerned by display of a notice board at a prominent place of the workspot. The person, responsible for compliance of the safety code, shall be named therein by the contractor.
- XV. Notwithstanding the above clauses for (i) to (xiv), there is nothing in these to exempt the contractor from the operation of any other Act or Rules in force in the Republic of India.

## **9. LABOUR LAWS AND RULES**

The Site Engineer shall ensure that the contractor maintains relevant records and fulfils all conditions and requirements in accordance with

- a. The payment of Wages Act
- b. Employer's Liability Act
- c. Workmen's Compensation Act
- d. Contract Labour (Regulations & Abolition) Act 1970 and Central Rules 1971.
- e. Apprentices Act 1961.
- f. Any other Act or enactment relating thereto and rules framed thereunder from time to time.

The Site Engineer shall refrain from involving himself and the supervisors under him by comments/advice/attempts at mediation in any kind of labour dispute at site. His job is only to report to his superiors any happenings of the sort in an objective manner.

### **EMPLOYER'S RESPONSIBILITY - CONTRACT LABOUR (REGULATIONS AND ABOLITION) ACT 1970 AND RULES 1971**

With a view to ensuring that the provisions of the Act are not contravened, the Site Engineer should give particular attention to the following points and see that all the provisions of the Act are enforced:

1. Principal Employer (Banks) is registered as per the Act.
2. Contractor holds a licence under the Act from the Local Labour Commissioner for the appointment of Contract labour.
3. Required notice boards, registers and records as provided in section 29 of the Act are maintained by the contractor.
4. Payment of proper wages as per the rules are effected within the prescribed time limits by the contractor.
5. Prescribed facilities and amenities are provided by the contractor.
6. Proper efforts are made by the contractor to set right contravention of law, as soon as the notice pointing out the same is received from the Labour Enforcement Officer, and reports "on action taken" are sent to the Labour Enforcement officer at the earliest with copies to the Employer.

## 10. CONDITIONS OF CONTRACT

1. Contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause of the delays may be, including delays arising out of modifications to the work entrusted to him or in any subcontract connected there with or delays in awarding contracts for other trades of the project or in commencement or completion of such works in obtaining water and power connections for construction purpose or for any other reason what so ever and the Employer shall not be liable for any claim in respect thereof. The Employer does not accept liabilities for any sum besides the tender amount, subject to such variations as are provided for herein.
2. The successful tenderer is bound to carry out any items of work necessary for completion of the job if such instructions in respect of such additional items and their quantities will be issued in writing by the Architects with the prior consent in writing of the Employer.
3. The contractor must bear in mind that the work shall be carried out strictly in accordance with tender specifications and instructions of the Employer/Architects.
4. The rates quoted in tender shall also include electric consumption charges for power. If no power is available at site the contractor shall have to make his own arrangement to obtain power connection and maintain at his expense an efficient service of electric light and power and shall pay for the electricity consumed. The Employer shall give all possible assistance to the contractor to obtain the requisite permission from the various authorities, but the responsibility for obtaining the same shall be that of contractor.
5. Contractor shall strictly comply with the provisions of safety code in addition to all local rules and regulations.
6. The contractor shall be responsible for the observance of all rules and regulations framed by the government under the contract labour act. The Employer shall be entitled to deduct all losses, damages that he might suffer on account of non-observance of these rules by the contractor, from the amount payable to the contractor.
7. Time shall be considered the essence of this contract. The entire work must be completed as given in the Notice Inviting Tender. If the completion of the work is delayed a penalty at the rate of  $\frac{1}{2}$  % per week over the contract value will be imposed subjected to a maximum of 5%.

If the work is delayed beyond 10 weeks after the scheduled date of completion, the remaining work will be carried out through other agencies at the risk and cost of the contractors under the contract with prevailing market rates.

8. The successful tenderer shall submit the phased programme of execution of different items of work within a week after receipt of acceptance letter.
9. Payment will be made subjected to a minimum value as stated in the Notice Inviting Tender and will be made within a period of TWO weeks after the bill is submitted to the Employer's Office with Architects Certificate.
10. Before filling in the tender the contractor will check all the drawings and schedule of quantities and will get an immediate clarification from SBIIMS / Architects on item not clearly understood. No claims for any loss or compensation will be entertained on this account.
11. All the work shall be carried out as per detail drawings and specifications or as directed by SBIIMS / Architects.
12. The rates quoted in the tender shall be for the finished items of work They shall include all the charges labour, materials, transportation of material equipment, double scaffolding water and electric charges, tool and plants, marking out and cleaning of site, to do all things necessary to provide complete finished item for work consistent with the specifications attached to this tender document. The rates shall be inclusive of G S T, octroi duty, excise duty, packing and forwarding, loading or unloading or any other duties or fees levied by any government, public or local bodies. The rates shall be firm and shall not be subject to exchange variations, labour conditions, revision of tax rates or any other conditions whatsoever.
13. The calculations made by the tenderer should be based upon the probable quantities of the several items of work which are furnished for the tenderer's convenience in the schedule of quantities ,but it must be clearly understood that the contract is not a lumpsum contract , that neither the probable quantities nor the value of individual items nor the aggregate value of the entire tender will form part of the contract and that SBIIMS / Architects do not in any way assure the tenderer or guarantee that the work would correspond there to.
14. Adequate engineering and technical staff to be appointed at site. Firefighting contractor should inform of their number and qualification. An Approval of SBIIMS / Architects should be taken prior to appointing such technical staff on site.
15. The contractor shall keep the tender submitted by him open for acceptance for a minimum period of three months from the date of it's submission .When once the tender is accepted the rates quoted by the successful tenderer shall be firm and the variation in rates of



any one or all the items on any account shall not be allowed during the entire duration of the contract.

16. During the execution of work, contractor must check the work with his drawings .The contractor shall be responsible for all the errors in this connection and shall have to rectify all the defects at his own cost, failing which the client reserves the right to get the same rectified at the risk and cost of contractor.
17. No claim for extra item or deviation from specification shall be entertained unless the same is pointed out and accepted as such before the work is taken in hand or within 15 days of work by the successful tenderer.
18. The contractor shall comply with all bye- laws and tax regulations (including GST) of local and other statutory authorities having jurisdiction over the works and shall be responsible for the payment of all the fees and other charges and for giving and receiving of all necessary notices drawings and test certificates.
19. The successful tenders shall properly safeguard against damage or injury to the public and to any property or thing and shall alone be responsible for any such damage and injury to any person or persons or thing arising in connection with it's execution of work.The successful tenderer shall protect and hold harmless the SBIIMS against any or all claims for any such injury or damage.
20. The work in every respect during the progress and till final acceptance by the SBIIMS, including raw materials delivered at the site to be incorporated or used in the work by the successful tenderer will be at his own risk. Any loss or damage to any such material or work shall immediately be replaced by the successful tenderer at his own expense.
21. The SBIIMS shall have the right to direct the contractor to purchase and use the materials from any source for proper execution of work.
22. The employer / SBIIMS / Architects or their authorized representatives shall have full power for inspecting the contractor's works or at any place from which the material is obtained.Acceptances of any such materials shall no way relieve the contractor of his responsibility for meeting the requirements and /or analysis not called for in the specifications shall be borne by the SBIIMS in case the material or work is found defective or of inferior quality .Tests and /or analysis shall be done in the laboratory approved by the Employer/SBIIMS and the contractor shall permit SBIIMS and or the client's or their authorized representative to be present during any of the tests and /or analysis.

## 23. WORKMAN AT SITE:

The contractors workpeople shall not be allowed to live on the site at any time throughout the contract nor to trespass beyond the limits of the site. The contractor will be held responsible for any acts of trespass by his workman.

## 24. DIMENSIONS :

Figures dimensions are to be taken in preference to scaled dimensions in all cases. Before commencing any work the contractor shall verify all measurements. If any discrepancies are found they shall immediately be brought to the notice of the Architects.

## 25. DISCREPANCIES

All the items shown on the drawings or specifications are taken to be included in both. Any discrepancies, which occur in either the drawings or specifications, shall immediately be brought to the attention of the Architects.

## 26. CUTTING AND MAKING GOOD

Where it is found necessary to interfere with finished work in order to execute this contract, the contractor will be required to do all necessary work at his expenses. Only approved hangers and bolts or other metal fixing devices shall be used to secure frames panels and other units in position. Wooden plugs will not be permitted. Holes shall be formed with electric drills whenever possible. Structural members shall not be cut or drilled without prior consent of the client.

## 27. MAINTENANCE AND GUARANTEE

The whole of the work to be performed under this contract shall be completed to the satisfaction of the Architects / SBIIMS / Employer.

The contractor without additional charge to SBIIMS renew or replaces any works which prove faulty from workmanship or materials and fully maintain the whole installations for a period of 6 months after the commencement of defects liability period of the main contract and a sum of 5% of the contract amount shall be retained by SBIIMS for his period.

## 28. PREVENTION OF SPOIL DUMPING

The contractor shall take all reasonable steps to prevent spoil, rubbish, debris surplus materials etc., arising from a work being dumped on an area other than a recognized or approved tipping area and the Contractor will be held responsible for and shall indemnify SBIIMS against any claim or loss arising therefrom.

29. LEAVE PERFECT:

The Contractor shall remove all rubbish and superfluous material from the site of the works with all reasonable speed from time to time as instructed by SBIIMS/Employer and after completion. On no account shall W.C' S or the SBIIMS's receptacles to be used for this purpose.

The client reserves its right to clear contractors uncleared debris at contractors own cost without any reasons & not more than one notice will be given for this.

30. 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 of materials used on the work or as to any other question, claim, right matter or thing whatsoever in any way arising out of our relating to the contract, designs, drawings, specifications, estimates, instructions orders or these conditions or otherwise concerning the work or the execution or failure to execute the same whether arising during the progress of work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:

- (a) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4<sup>th</sup> Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 and endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the bank be in any way liable in respect of any claim by the contractor unless notice of such claim have been given by the Contractor The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4<sup>th</sup> Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to AGM (SBIIMS), Circle Office, 4<sup>th</sup> Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 in writing in the manner and within the time aforesaid.
- (b) The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., Circle Office, 4<sup>th</sup> Floor, State Bank of India, LHO

Building, Poojappura, Thiruvananthapuram - 695012 shall give his decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd, 4<sup>th</sup> Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012 submit his claims to the conciliating authority namely the Circle Development Officer, State Bank of India, Local Head Office, Thiruvananthapuram for conciliation along with all details and copies of correspondence exchanged between him and The Assistant General Manager, SBI Infra Management Solutions Pvt. Ltd., , 4<sup>th</sup> Floor, State Bank of India, LHO Building, Poojappura, Thiruvananthapuram - 695012.

- (c) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned Chief General Manager of the Bank for appointment of an arbitrator to adjudicate the notified claims failing which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.
- (d) 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. 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. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said Chief General Manager. 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 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 re-enactment thereof and the rules made thereunder.

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 settlement 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 thereof, shall be paid and fix or settle the amount of costs to be so paid.

### 32. TERMINATION OF CONTRACT BY EMPLOYER:

If the contractor (being an individual or a firm) commit any " Act of Insolvency ", or shall be adjudged as insolvent, or shall make an assignment or composition of the greater part in number or amount of his creditors, or shall enter into a Deed of Assignment with his creditors, or (being an incorporated Company) shall have an order made against him or pass an effective Resolution for winding up either compulsorily, or Subject to the supervision of the court or voluntarily, or if the official Assignee of the contractor shall repudiate the Contract, or if the Official Assignee or the Liquidator in any such winding up shall be unable, within seven days after notice to them requiring him to do so, to show to the reasonable satisfaction of the Architect that he is able to carry out and fulfill the Contract and if required by the Architect to give a security therefor, or if the contractor shall suffer any payment under this contract to be attached by or on behalf of any of creditors of the Contractor, if the Contractor shall assign or sublet the contract without the consent in writing of the Architect first obtained, or if the contractor shall charge or encumber this Contract for any payments due or which may become due to the Contractor thereunder, or if the Architect shall certify in writing to the SBIIMS that in his opinion the Contractor:

- (a) Has abandoned the Contract, or
- (b) Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the work for fourteen days after receiving from the Architect written notice to proceed, or
- (c) Has failed to proceed with the work with such due diligence and failed to make such due progress as would enable the works to be completed within time agreed upon or
- (d) Has failed to remove materials from site or to pull down and replace works within seven days after receiving from Architect written notice that the said materials or work were condemned and rejected by the Architect under these conditions or
- (e) Has neglected or failed persistently to observe and perform all or any of the acts, matters or things required by this Contract to be observed and performed by the Contractor for seven days

after written notice shall have been given to the Contractor requiring the contractor to observe or perform the same, or

- (f) Has to the detriment of good workmanship or in defiance of the Architects instructions to the Contrary, submit any part of the contract or has used in the permanent works important materials which are substandard and not as per specification fraudulently making the Architect / SBIIMS to believe that it is the specified material.

Then and in any of the said caused the SBIIMS with the written consent of the Architect may, notwithstanding any previous waiver, after giving seven day's notice in writing to the Contractor, determine the contract, but without thereby affecting the powers of the Architect or the obligations and liabilities of the Contractor, the whole of which shall continue to be in force as fully as if the contract has not been so determined and as if the works subsequently executed and being executed by or on behalf of the contractor. And further, SBIIMS with the consent of the Architect by his agents or servants may enter upon and take possession of the works and all plant, tools, scaffoldings, shed, machines, steam and other power utensils and materials lying upon premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workman in carrying on and completing of the works or by employing any other Contractor or any other person or persons to complete the works and the Contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other Contractor or other person or persons employed for completing and finishing or using the materials and plant for the works, when the work shall be completed, or as soon thereafter as convenient, the Architect shall give a notice in writing to the Contractor, to remove his surplus material and plant and should the Contractor fail to do so within a period of fourteen days after receipt thereof by him, the SBIIMS may sell the same by public auction and shall give credit to the Contractor for the amount so realized. The Architects shall thereafter shall assertion and certify in writing under his hand what (if anything) shall be due or payable to or by the SBIIMS, for the value of the said plant and materials so taken possession of by SBIIMS, and the expense or loss which the SBIIMS shall have been put to in getting the works to be so completed, and the amount, if any owing to the Contractor and the amount which shall be so certified shall, thereupon, be paid by SBIIMS to the Contractor or by the Contractor to SBIIMS as the case may be, and the certificate of the Architect shall be final and conclusive between the parties.

- 33. The mode of measurements shall be as per IS: 1200.
- 34. The contractor should co-ordinate with other agencies viz., INTERIOR, HVAC (Air- Conditioning), Civil, LAN cabling etc.,
- 35. CONTRACTOR SHOULD WORK AT ODD HOURS, ON HOLIDAYS TO KEEP UP TIME SCHEDULE.
- 36. The Contractor shall not be eligible for any material advance.

## 11. SPECIAL CONDITIONS AND SAFETY CONDITIONS

The contractor is hereby advised to read the following conditions carefully before quoting rates and to be strictly adhered during execution of work.

### SPECIAL INSTRUCTIONS

- a) Contractor shall submit copies of all statutory compliance certificates such as ESIC, PF, Contract labour registration, shop & establishment and or any other local authority registration as applicable.
- b) All workmen, engineers, supervisors shall be converted as per ESIC, PF & minimum wages act.
- c) All workmen, engineers, supervisors shall undergo pre-employment medical checkup through company recognized medical officer and submit copies of test report.

Contractor to provide proof of monthly remittances with regard to the workmen deployed at the site.

Contractor is responsible to ensure that his workmen are confined to their work area and comply with all safety, security and administrative instructions given by the site engineer.

Contractor shall provide identification badges to all his people.

On completion of day's work, the entire area shall be kept clean and neat. All debris, surplus material etc., shall be removed immediately from the site.

Any substandard material used during execution will be rejected and fully deducted from the bills.

The contractor has to carry out the work in coordination with the other appointed agencies. The contractor should study the situation at site and organize the work accordingly. Whenever work needs to be done in coordination with other agencies, the contractor shall work out the actual time required to complete his part of the job in respects and inform the Architect/SBIIMS.

Revision of rates is not allowed and will be not paid for any reason due to unexpected increase in the cost of the materials or delay in completing the works etc.,

No labour hutment is allowed inside the premises. The areas are in "No smoking Zone" therefore smoking is strictly prohibited.

All workmen, Mastri, supervisor and Engineers wearing shoes and safety helmets are only allowed to enter the gate.

Every day contractor / his supervisor should take necessary "Work permit" from the company engineer before starting the job. Workers are not allowed to sleep during night and cook well inside the premises.

Work to be carried out only under supervision of the qualified engineer who should be always available at site and keep a record of daily work progress in a separate register..

Contractor should strictly following safety guidelines. Contractor should use only angle/pipe scaffolding. Wooden scaffolding is not allowed.

All contractor's people need to undergo induction/safety training and formal interview by company selection committee.

Contractor shall submit a copy of competency certificates like wiremen license, supervisor's license, IBR welder license etc., issued by competent authority before starting the work. Contractor shall maintain daily master roll book for his people at site. Based on that, ESIC & PF contribution is to be made.

### COMPANY SAFETY GUIDE LINES

#### WORKING BELOW GROUND LEVEL:

Check that there are no underground cables/ water/sewage lines prior to start of work area. If found inform site in-charge. Disconnect power supply to any cables found in work areas with permission.

For pits deeper than 3 feet workmen should be provided with lifelines. Ladders should be provided for quick escape from the pit. Provide firmly supported side shuttering or shoring to prevent accidental collapse of earth into pits; cordon off the area around the pit to prevent accidental falls. (Cordon must be at least 3 feet beyond the pit edge) excavated earth from the pit must be stacked only beyond the cordon. Refill the pit promptly on completion. Incase pits need to be left open for any reason, ensure proper covers over the pits.

#### WORKING AT HEIGHTS:

All personnel working at heights beyond 1.8M should wear safety belts.

Ensure that safety belts are tied securely to anchors while working at heights.

Ensure that rigging is well anchored to solid supports prior to erecting items like trusses at a height.

Ensure that debris is cleared on a daily basis from work spots.

Ensure that a nylon safety net is securely fitted under the trusses to provide safety against accidental falls to personnel (who will need to have safety belts securely fastened) working on the trusses and roofing. Alternatively well-supported platforms with protected railings should be used a height suitable for personnel to work while standing.

Ensure that roof top ladders are used while laying and working on the roof. Ensure that ladders used for climbing to heights are firmly secured against slippage. All scaffolding should be in steel frames. Scaffolding



should be provided with 3 feet wide working platforms. The platforms should be provided with protective railings.

#### WORKING WITH ELECTRICITY

Ensure proper earthing of all electrical machines used. Ensure that all connections are taken throughout earth leakage's circuit breakers. Providing ELCB on the main distribution board prevents accidental shocks.

Ensure that welders always used suitable welding goggles and gloves while welding.

Ensure availability of 2 CO2 type fire extinguishers at any easily accessible location at site for fire fighting  
Provide a pair of fire buckets filled with dry sand for firefighting at site.

As far as possible DC generators sets shall be used instead of AC transformer sets. The welding transformer shall be fed through an armored cable.

All connections from main to individual M/C (such as cutter, planer, compressor etc.) to be taken through shielded cable and 3-pin plug only. The portable machines should be of fully insulated or plastic body. No metal body is allowed.

During welding the earthing to be provided directly to the member to be welded throughout cable only not using any reinforcement rod/angles.

#### PERSONAL PROTECTIVE GEAR

Following is a list of items to be provided to workmen by the contractor as and when required the items must be ISI certified.

Safety shoes

Hard hats

Safety belts

Goggles

Gloves

Safety nets

Roof top ladders

GENERAL

BREAKING WORKS:

Workmen engaged in breaking stones/chipping of concrete should wear safety goggles.

## **12. OTHER CONDITIONS:**

### **CONTENTS:**

- A) SPECIAL CONDITIONS**
- B) TECHNICAL SPECIFICATIONS**
- C) RECOMMENDED MAKES OF MATERIAL**
- D) SCHEDULE OF QUANTITIES**

### **A. SPECIAL CONDITIONS**

#### **1. General:**

1.1 These special conditions shall be read in conjunction with the description of the item of work in the Bill(s) of Quantities, the particular Specifications, Local Statutory Regulations, Indian Standards Specifications/Codes and the drawings. All the above quoted documents, shall be considered supplementary to each other. However, in the case of conflict amongst the various provisions the SBIIMS and the consultants opinion will be final and shall be adopted.

1.2 The tenderer is advised to inspect the site to ascertain the nature of site, access thereto, local facilities for procurement of materials and working labour rates prevalent in the area, in fact all matters affecting his prices and execution of the work. The tenderer shall be deemed to have full knowledge of the site and drawings whether or not he actually inspects them.

#### **2. Rates**

2.1 The rates quoted shall be deemed to allow for all minor extras and constructional details which are not specifically shown on drawings or given on the specifications but are essential in the opinion of the Engineer-in-charge to the execution of works to conform to good workmanship and sound engineering practice. The Consultant/SBIIMS reserves the right to make any minor changes during the execution without any extra payment.

2.2 The Consultants/SBIIMS decision to clarify any item under minor changes, minor extras and constructional details shall be final, conclusive and binding on the Contractor.

2.3 The rates quoted by the Contractor shall be net so as to include all requirements described in the contract agreement and no claim whatsoever due to fluctuations in the price of material and labour will be entertained.

2.4 The rates quoted by the Contractor shall include for supplying materials and labour necessary for completing the work in the best and most workmanship like manner to the satisfaction of the Consultant/SBIIMS and which in the opinion of the Consultant cannot be made better, and for maintaining the same. The rates shall be complete in all respects also including cost of materials, erection, fabrication, labour, supervision, tools and plant, transport, sales and other taxes, GST, royalties, duties and materials, contingencies, breakage, wastage, sundries, scaffoldings, etc., on the basis of works contract. The rates quoted shall include all transport, insurance, octroi, or any other levies applicable under the statute.

#### **3.0 Materials:**

3.1 The Contractor shall ensure to the satisfaction of the Consultant/SBIIMS that the materials are packed in original sealed containers/packing bearing manufacturer's markings and brands etc., except where the gross quantity required is a fraction of the smallest packings. Materials not complying with this requirement shall be rejected.

#### **3.2 Testing of Materials:**

a) When required by the Consultant / SBIIMS, the Contractor shall provide all facilities at site or at manufacturer's works or in an approved laboratory for testing the materials and/or workmanship. All the expenditure in respect of this shall be borne by the Contractor unless specified otherwise in the Contract. The Contractor shall, when

required to do so by the Consultant shall submit at his own cost, manufacturer's certificate of tests, proof sheets, mill sheets etc., showing that the materials have been tested in accordance with requirements of these specifications. The samples for Tests shall be selected by SBIIMS / Consultant.

#### **4.0 Rectification of Defects:**

4.1 Any defect in the work done or materials used in the works pointed out by the Consultant / SBIIMS shall be rectified within a week or such extended time as may be allowed in this failing which the said defect shall be got rectified by the Consultant at the risk and cost of the Contractors.

#### **5.0 Manufacturer's Instructions:**

Where manufacturers have furnished specific instructions, relating to the materials used in this job, covering points not specifically mentioned in the documents, these instructions shall be followed in all cases.

#### **6.0 Qualified Competent Supervision :**

The Contractor shall employ competent fully licensed, qualified full time Engineer to direct the work of firefighting works in accordance with drawings and specifications. The Engineer shall be available at all times on the site to receive instructions from Consultant in the day to day activities, throughout the duration of the contract. The foremen shall co-relate the progress of the work in conjunction with all relevant requirements of the authorities.

**7.0 Measurements:** It will be the responsibility of the contractor to submit the detailed split up of measurements with drawings during the progress of work so that it will be accessible and easy to verify by the consultant/SBIIMS. GI duct, under deck insulation, Copper piping, drain piping etc should be measured before fixing the false ceiling. If the item is not visible for measurements only shortest measurement taken by consultant/SBIIMS will be considered.

**8 .Drawing:** The contractor should display one set of laminated drawing with as fitted layout drawing in each floor and submit another three sets along with the final bill.

## A P P E N D I X – I V

### MANDATORY TESTS

Material	Test	Test Procedure	Minimum Qty.	Frequency
Lime	Chemical and Physical Properties of Lime	15-6932	5M. Tonnes	10M.T. or part thereof
Sand	a. Silt content	Field	25 Cum.	25 Cum. or part thereof
	b. Bulking	"	"	-do-
	c. Particle size	"	50 Cum.	Every 50 cum or part thereof required for R.C.C. work.
	d. Percentage of Deterious Materials	Laboratory	100 Cum.	Every 50 cum or part thereof required for R.C.C. work.
Stone / Coarse Aggregate	a. Soft & Deterious materials	IS – 2386 (Part – II)		2 Nos
	b. Particle size Distribution	Field	50Cum	Every 50 cum or part thereof required for R.C.C. work for rest of work as Desired by The Architect
	c. Impact/Crushing Strength			2 Nos,
Bricks	1. Dimensions			Every 50,000 or part Thereof
	2. Water absorption	IS-1077 1970	1,00,000	Every 100000 or part thereof
	a. Efflorescence	-----	-----	One test for source of manufacture
	3. Compressive Strength	-----	1,00,000	Two tests for 1st lot of 1,00,000 and one test for every 200000 or part thereof
Water	1. PH value 2. Percentage of Soild			Once before undertaking the construction work.
Cement Concrete or RCC	1. Slump	Field		Once a day or as desired
	2. Cube strength		(i) 25 Cum or part thereof for Slabs, Beams and Connected Columns	(i) Every of 25m3 a days concrete

Material	Test	Test Procedure	Minimum Qty.	Frequency
	2. Cube strength		(ii) 10m <sup>3</sup> for columns lintels chajjas, etc.	(ii) Every 10m <sup>3</sup> or part thereof.
Timber	Moisture Content a. Stiles/Rails in shutter	50Sq.m.		a. One for every 50 sq.m. or part thereof
	b. Scantlings	1 Cum		b. One for every 1 cum. or part thereof
Terrazo Tiles	i) Transverse Strength	IS-1237	2000 Tiles	One for Every 2000 Tiles or part
	ii) Water absorption	IS-1237	2000 Tiles	-do-
	iii) Abrasion Test	IS-1237	2000 Tiles	-do-
Steel Procured from manufactures' other than TISCO, SAIL, IISCO and RINL	Tensile Strength  Bend Strength	IS-1529	20 M.T. or part thereof for each dia.	Every 20.00 M.T. or part thereof for each individual Dia
Cement	Compressive Strength, Fineness, Soundness, Setting time (initial & final)		50M.T.	Every 50.00 M.T. or part thereof.

## TECHNICAL SPECIFICATION OF MATERIALS

1. Materials shall be of the approved quality. A list of materials of approved brand and manufacture is indicated in the annexure. If the list of materials mentioned above stipulates two or more or alternative brands/makes of any product, the decision as to which brand/make shall be used in the work shall be taken by the Architects/Employer and the contractor shall provide the brand/make so selected without any extra cost. Testing of materials even of approved brand shall have to be done by the contractor at their own cost, whether it is indicated in the list of "Mandatory Tests" or not to ensure quality. Materials stamped with ISI Mark shall be used if available.

In case, materials are required to be obtained from any manufacturer other than those listed on account of non-availability then prior approval from Architects will be necessary supported by relevant test certificates qualifying the required standard. Further Tests as directed by the Architects shall also be carried out by the contractor at their own cost, if required.

2. Contractors shall obtain approval of the Architects/Owner of sample of all materials before placing order and the approved sample shall be carefully preserved in an appropriate manner at the site office for verification by the Owner/Architects.
3. For standard bought out items, the sizes manufactured by the firms listed shall prevail when there is discrepancy in the sizes mentioned in the schedule without any financial adjustment.
4. Materials shall be tested at site/any approved Testing Laboratory. The Laboratory Test Certificate in original shall be submitted to the Architects and then entire charges connected with testing including charges for repeated tests if ordered, shall be borne by the Contractor. Test results are also to be recorded at site registers appropriately.
5. It shall be obligatory for the Contractor to furnish certificates, if demanded by the Architects, from manufacturer or the material supplier, stating that the work has been carried out by using their material.
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 work.
7. All equipment and facilities for carrying out field tests on materials shall be provided by the Contractors with out any extra cost.
8. Unless other wise shown on the Drawings or mentioned in the "Schedule of Quantities" or any where in the contract. The quality of materials, workmanship, dimensions etc. shall be as specified herein under.
- 9.1 Earth for filling  
Shall be selected earth suitable for filling and as approved by Architects and shall be free from building rubbish or organic decomposed material. They shall

be obtained either from excavation or brought from outside, as specified in the schedule of items. Black Cotton Soil shall not be used for filling.

## 9.2 Cement

Cement conforming to IS:269/IS:455 shall be used. The use of cement other than ordinary Portland cement/Blast furnace slag cement may be allowed for small quantity with prior approval of Architect/Owner.

Cement shall be stored in dry weather proof godown/shed built by the contractor at his own cost in order to prevent deterioration by dampness or intrusion of foreign matter. Not more than 10 bags should be kept in one stack and it shall be stored in such a manner as to permit easy access for proper inspection. 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 first used. Cement deteriorated and/or clodded shall not be used on work but shall be removed at once from the site at contractor's cost.

Daily record of cement received and consumed shall be maintained by the Contractor in the cement register at site and submitted to Architects, if called for. Theoretical consumption vis-à-vis materials brought at site by the Contractor shall also be submitted with proper documents with every bill for verification. A chart showing the consumption of cement for different items of work is annexed. Consumption of cement in the corresponding items of work under the contract shall be computed on the basis of the quantities shown in the table subject to a variation of plus/minus three percent. The weight of 1 cum. of cement shall be taken as 1440 Kg. for the items not available in the enclosed cement consumption chart CPWD schedule shall be followed.

## 9.3 Lime

Lime shall be made from approved Lime Stone or Kankar and properly burnt and shall be as per IS:712-1984. It shall be free from excess of unburnt kankar or lime stone ashes or other extraneous materials and shall be stored to prevent damage by rain, moisture or air slaking and damages lime shall not be used but shall be removed from the site of work forthwith at contractors cost. Lime shall be slaked with fresh water and screened through appropriate screens and stored and used within 14 days provided it is protected from dyeing out.

## 9.4 Fine aggregate

Sand shall be from natural source, chemically inert, clean, sharp, hard, durable and well graded and free from deleterious materials not exceeding the permissible limit as per IS:383-1970. The Silt Content shall be within 8%. If it is in excess, washing shall be done in an approved manner to bring it within allowable limit.

The Fine aggregate for concrete shall be graded and the Finest Modulus shall be between 2.60 to 3.20. The finest modulus of fine aggregate shall be between 1.80 to 2.60 for plaster and masonry work.

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 brick floor or a thin layer of lean concrete shall be prepared.

The percentage of deleterious materials shall be within the permissible limits as specified in IS:383-1970.

#### 9.5 Coarse Aggregate

Shall consist of crushed or broken stone 95% of which shall be retained on 4.75mm IS test Sieve. It shall be obtained from crushing Granite, Quartzite, Trap, Basalt or similar approved stones. Coarse aggregate can be chemically inert when mixed with cement and shall be roughly cubical in shape and free from soft friable, thin, laminated or flaky peaces. The maximum percentage of materials shall not exceed those specified in IS:383-1970. The Coarse aggregate used in the work shall conform to the grading as per limit specified in IS:383-1970.

#### 9.6 Steel Reinforcement

Mild steel bars:

Mild steel reinforcement bars shall conform to IS:226-1962 "Standard Quality" or IS:432-1966-Grade-I. Other qualities of steel shall not be acceptable.

#### 9.7 High Strength Deformed Bars

Where deformed high strength bars are specified, the contractor shall obtain the material from one of the following:

- a. "Tistrong"-II as manufactured by M/s. Tata Iron and Steel Company conforming to IS:1139-1966 obtained from TISCO;
- b. "Tor steel" as manufactured by M/s. Hindustan Steels or any ISI approved manufacturers conforming to IS:1786-1966;
- c. Approved re-rollers of Tata /Sail;
- d. Local dealers, if required for minor quantities.

Testing of bars will be necessary as indicated in "Mandatory Test".

#### 9.8 Bricks

The bricks shall be locally available Kiln Burnt bricks of generally regular and uniform size, shape and colour, uniformly well burnt through out but not over burnt. They shall be free from cracks or other flaws.

They shall show a fine grained, uniform, homogenous and dense texture on fracture and be free from lumps of lime, laminations, cracks, air hole, soluble salts causing efflorescence or other defects which may in any way impair their strength, durability, appearance, usefulness for the purpose intended. They shall not break even after being dropped on the ground on their flat face in a saturated condition from a height of 60.00 cms. (About Two feet).



The size of brick shall be nominally 250mm x 125mm x 75mm or 230mm x 115mm x 65mm only.

Tolerance on dimensions up to (+ or -) shall be permitted. The dimension of bricks shall be tested as per method prescribed in CPWD Specification.

After immersion in water, absorption by weight shall not exceed 20% of the dry weight of the brick when tested according to ISS No. 1077-1970. The bricks shall have a minimum average compressive strength of 50 Kg/cm<sup>2</sup> as specified in nomenclature of the item. The compressive strength of any individual brick on testing shall not fall below the average compressive strength by more than 20% (Twenty percent). The rating of efflorescence of bricks shall not be more than 'Moderate'.

The bricks to be used for the work shall be approved by the Owner/Architects before hand.

#### 9.9 Water

Water for mixing Cement/Lime/Surkhi mortar of concrete shall not be salty or blackish and shall be clean, reasonably clear and free from injurious quantities of deleterious materials. It shall not contain any sugar or excess of oil, acid and injurious alkali, salts, organic matter 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. Water shall be tested once before undertaking the construction work in an approved testing laboratory to establish its suitability. All charges connected therewith shall be borne by the Contractor. The percentage of solids in the water shall not exceed the limit specified in IS:456-1978. The Ph value of water shall generally be noted less than 6.

#### 9.10 Glazed Tiles

White or coloured glazed tile shall be obtained from an approved manufacturer and shall be flat and true to shape they shall be free from cracks, crazing, spots, chipped edges and corners. The glazing and colour shall be of uniform shade and unless otherwise specified the tile shall be as per manufacturer's specification. Tolerance in dimension may be  $\pm 1.0\text{mm}$  in sizes and  $\pm .5\text{mm}$  in thickness. Testing as indicated in list of "Mandatory Test" shall be performed and all charges thereof shall be borne by the Contractor.

#### 9.11 Glazing

Glass used for glazing shall be sheet glass unless other wise specified clear or obscured as directed by the Architects/Owner of approved quality, free from flaws, specks, bubbles and shall be 2.9mm thick up to 0.60 x 0.60 M size and for larger size it shall be 4mm thick unless otherwise specified in the Schedule of Quantities.

#### 9.12 PVC. Rain Water Pipes

All PVC pipes and fittings shall be of approved manufacturer free from cracks, chipped edges or corners and other damages. The pipe shall be IS Stamped.

9.13 Trafford Sheets

Trafford Sheets shall be of the gauge specified in the description of the item. The sheets shall be free from cracks, split edges, twists, surface flaws etc. They shall be clean, bright and smooth. The sheets shall show no signs of rust or white powdery deposits on the surface. The corrugations shall be uniform in depth and pitch and parallel.

9.14 Paints

Dry distemper, oil bound distemper, cement primer, oil paint, enamel paint, flat oil paint, plastic emulsion paint, anti corrosive primer, red lead, yellow zinc chromate, water proof cement paint shall be from an approved manufacturer without any admixture shall be used, except for addition of thinner, if recommend by the manufacturer.

9.15 Cement Admixtures

Cement admixtures are to be obtained from approved manufacturer with the explicit approval of the Architects. The use of admixture containing Calcium Chloride, Fluorides, Nitrates and sulphates is prohibited. The Architects decision as regards use of admixture is final and binding.

9.16 Hardware Fittings

The Hardware Fittings, Iron or Aluminium shall be obtained from approved manufacturer and IS stamped, if available. The M.S./Iron fittings are to be oxidised and Aluminium fittings anodised in natural colour mat satin finish, even if not otherwise specified.

9.17 Polysulphide Sealant

Polysulphide sealant should be obtained from approved manufacturers.

9.18 Mortars

9.19 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 well and evenly mixed together in a mechanical pan mixture, care being taken not to add more water than is required. No mortar that has begun to set shall be used.

Hand mixing shall not be permitted except for unimportant structural members and purely at the discretion of the Bank/Architects.

If hand mixing is done, 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. The contractor shall use 10% extra cement for hand mixing for which no extra payment will be made.

10.0 Wherever references to codes are mentioned, they shall mean its latest revisions.

## **SECTION – I**

### **PLAIN REINFORCED CEMENT CONCRETE**

All concrete work shall be carried out by the contractor under the supervision of a concrete foreman sufficiently experienced in this type of work.

#### **Ingredients to be used in concrete and Reinforced concrete work.**

Ingredients to be used in concrete should conform to the specifications as indicated under "Technical Specifications for Materials" given earlier.

As regards admixture, this may be used with prior approval of Architects/Consultant.

#### **Mix Proportion**

The mix proportions shall be selected to ensure that the workability of the fresh concrete is suitable for the conditions of handling and placing, so that after compaction it surrounds all reinforcements and completely fills the form work.

The determination of the proportions of cement aggregates and water to attain the required strength shall be made as follows:

- a) By designing the concrete mix; such concrete shall be called "Design mix Concrete" or
- b) By adopting nominal concrete mix; such concrete shall be called "Nominal Mix Concrete". Design mix concrete shall be preferred to nominal mix. If design mix concrete cannot be used for any reason on the work for grades of M20 or lower, nominal mixes may be used with the permission of the Architect/Consultant by using higher cement content at no additional cost to the owner.

#### **Design Mix Concrete**

The mix shall be designed to produce the grade of concrete having the required workability and characteristic strength not less than approximate values given in Table 'A'. The procedure given in Indian standard SP-23 should be preferred for the design but other standard methods may also be followed. As long as quality of materials does not change a mix design done earlier may be considered adequate for later work. Grades of concrete lower than M15 shall not be used for reinforced concrete work. M5 and M7.5 grades of concrete may be used for lean concrete bases and simple foundation for masonry walls. These mixes may not be designed and may be obtained from nominal mix concrete.

When mix is designed the records shall be maintained in the format annexed.

**TABLE A - GRADES OF CONCRETE**

Grade of Concrete	Specified characteristic compressive Strength	
	at 7 days	at 28 days
	N/mm <sup>2</sup>	N/mm <sup>2</sup>
M10	7	10
M15	10	15
M20	13.5	20
M25	17.00	25
M30	20.00	30
M35	23.5	35
M40	27	40

**Nominal Mix Concrete**

Nominal mix concrete may be used for concrete of grades M5, M7.5, M10, M15 and M20. The proportion of materials for nominal mix concrete shall be in accordance with Table 'B'.

The proportions of fine to coarse aggregates should be adjusted from upper limit to lower limit progressively as the grading of the Fine Aggregates becomes finer and the maximum size of coarse aggregate becomes larger. Graded coarse aggregates shall be used.

The cement in the mix specified in Table 'B' for any nominal mix be proportionately increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement and compaction, so that the water cement ratio as specified is not changed. In the case of vibrated concrete, the limit specified may be suitably reduced to avoid segregation.

The quantity of water used in reinforced concrete work should be sufficient, but not more than sufficient to produce a dense concrete of adequate workability for its purpose, which will surround and properly grip all the reinforcement. Workability of concrete should be controlled by maintaining a water content that is found to give a concrete which is just sufficiently wet to be placed and compacted without difficulty with the means

**TABLE 'B' – PROPORTIONS FOR NOMINAL MIX CONCRETE**

Grade of Concrete	Total quantity of dry aggregates by Mass per 50 Kg. of Cement to be taken as the sum of the individual masses of Fine and coarse Aggregate (Maximum) Kg.	Proportion of Fine Aggregate to Coarse Aggregate (By Mass)	Quantity of Water per 50 Kg. Of cement (Maximum) Litres.
1	2	3	4
M5	800	Generally 1:2 but subjected to an upper limit of 1:1½ and a lower limit of 1:2½	60
M7.5	625		45
M10	480	34	32
M15	350		
M20	250		30

## **PRODUCTION AND CONTROL OF CONCRETE**

In proportionating Concrete the quantity of both Cement and Aggregate should be determined either by weight or volume as the case may be. Where weight of cement is determined on the basis of mass of cement per bag, a reasonable number of bags should be weighed periodically to check the nett mass. Where the cement is weighed on the Site and not in bags it should be weighed separately from the aggregates. Water should be either measured by volume in calibrated tanks or weighed, any solid admixture that may be added may be measured by mass; liquid and paste admixture may be measured by volume or by mass. Batching plant where used should conform to IS 4925. All the measuring equipments should be maintained in a clean serviceable condition and their accuracy periodically checked.

Except where it can be shown to the satisfaction of the Architect/Consultant that supply of properly graded aggregate of uniform quality can be maintained over the period of work, the grading of aggregate should be controlled by obtaining the coarse aggregate in different sizes and blending them in right proportions when required, the different sizes being stacked in separate Stock piles. The grading of coarse and fine aggregate should be checked as frequently as possible to ensure that the specified grading is being maintained. Where weigh batching is not practicable, the quantities of coarse and fine aggregates may be determined by volume and based with the permission of the Architect/Consultants. No change in proportions or substitutions in materials shall be made without additional tests to show the quality and strength of concrete is satisfactory.

Mixing-Concrete shall be mixed in a standard mechanical mixer. The mixing shall be continued until there is a uniform distribution of the materials and the mass is uniform in colour and consistency. If there is segregation after unloading from the mixer the concrete should be remixed. The mixing time may be 1 ½ to 2 minutes generally. In exceptional circumstances such as mechanical breakdown of mixer, work in remote areas or when the quantity of concrete work is very small, hand mixing may be permitted subject to adding 10% extra cement for which no extra payment will be made to the contractor. When hand mixing is permitted, it shall be carried out on a water-tight platform and care shall be taken to ensure that mixing is continued until the concrete is uniform in colour and consistency.

Workability of concrete should be controlled by direct measurement of water content, and it should be checked at frequent intervals. For nominal mix workability measured by slump test may have the values given in Table "C".

**TABLE C**

Sl. No.	Type of Work	When Vibrated	when not Vibrated
1.	Mass concrete in R.C.C. Foundation footings retaining walls and road slabs.	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 change 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.

Transporting- Concrete shall be transported from the mixer to the form work as rapidly as possible by methods which will prevent the segregation or loss of any of the ingredients and maintaining the required workability. In no case, more than 30 minutes shall elapse between mixing and consolidation in its position. During hot and cold weather, concrete shall be transported in deep containers. Other suitable methods to reduce the loss of water by evaporation in hot weather and heat loss in cold weather may also be adopted.

Placing- The concrete shall be deposited as nearly as practicable in its final position to avoid rehandling. The concrete shall be placed and compacted before setting commences and should not be subsequently disturbed. Methods of placing should be such as to preclude segregation. Care should be taken to avoid displacement of reinforcement or movement of form of work. Concrete shall not be dropped into position from a height greater than 2.0m.

Compaction- Concrete should be thoroughly compacted and fully worked around the reinforcement, embedded fixtures and into corners of the form work. Mechanical vibrators should generally be used. Over-vibration or vibration of very wet mixes is harmful and should be avoided. Under vibration is also harmful.

Whenever vibration is to be applied externally the design of form work and the disposition of vibrators should receive special consideration to ensure efficient compaction and to avoid surface blemishes.

Beams and columns shall be vibrated using immersion vibrators. Thin sections like walls of water tanks, chajjahs, aprons etc. should be vibrated preferably using surface vibrators. It is better to vibrate in similar intervals for short period of time, rather than at wider intervals for longer periods of time. The vibrator shall be used only to aid compaction and not to push concrete laterally in the forms.

Construction Joints- Concreting shall be carried out continuously up to construction joints the position and arrangement of which shall be indicated by the designer.

When work is to be resumed on a surface which has hardened, such surface shall be roughened. It shall then be swept clean and thoroughly wetted. For vertical joints neat cement slurry shall be supplied on the surface before it is dry. For horizontal joints the surface shall be covered with a layer of mortar about 10 to 15mm thick composed of cement and sand in the same ratio as the cement and sand in concrete mix. This layer of cement slurry or mortar shall be freshly mixed and applied immediately before placing of concrete.

Where concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes. Care being taken to avoid dislodgement of particles of aggregate. The surface shall be thoroughly wetted and all free water removed. The surface shall then be coated with neat cement slurry. On this surface, a layer of concrete not exceeding 150mm in thickness shall first be placed and shall be well rammed against old work, particular attention being paid to corner and close spots. Work thereafter shall proceed in the normal way.

## **Curing**

Unless other wise specified, all exposed surfaces of concrete shall be kept continuously in a damp or wet condition by pounding or by covering with a layer of sacking canvass Hessian or similar materials and kept constantly wet for at least 7 days from the date of placing of concrete. Mere sprinkling of water on vertical surfaces shall not be allowed. The rate for R.C.C./ plain concrete work shall include cost of curing.

Approved curing compounds may be used at no additional cost to the owner in lieu of moist curing with the permission of the Architect/Consultant. Such compounds shall be applied to all exposed surfaces of the concrete as soon as possible after the concrete has set.

## **Facilities for preparation and Testing of concrete at site**

In order to exercise the required degree of constant control over the concrete material and its preparation the contractor is expected to set up and maintain at his own expense a Testing Laboratory at Site equipped with at least the following equipments:

- i) Compression Testing Machine of capacity 80t/100t;
- ii) A set of standard sieves;
- iii) Measuring cylinders, adequate number of cubes and cylinder moulds and slump cones;
- iv) Weighing balance;
- v) Vicat Apparatus;
- vi) Curing tanks for cubes:

## **SAMPLING, TESTING AND ACCEPTANCE OF CONCRETE**

Samples from fresh concrete shall be taken and cubes shall be made, cured and tested at 28 days in accordance with IS 516.

Tests shall be conducted for compressive strength on 15 cmsx 15cmsx 15cms Cubes of Concrete. Companion Specimens shall be cast from a single batch of concrete and shall be of the same age at the time of testing. In order to get a relatively quicker idea of the quality of concrete, additional tests of compressive strength tests at 7 days shall be carried out in addition to 28 days Compressive Strength Tests. In all cases 28 days Compressive Strengths specified in Table ' A' shall along be the criterion for acceptance or rejection of the concrete

### **Frequency of Sampling:**

The frequency of sampling is indicated in the list of mandatory tests.

Works test cubes shall represents quality of concrete incorporated in the work and taken out in sets of 6 cubes. The concrete for preparation of 1 set of 6 cubes shall be taken from one batch of mixed concrete discharged from mixer. The cubes shall be moulded in accordance with IS Code of Practise. Out of 6 cubes, 3 cubes shall be tested at an age of 7 days. In case of testing in an approved laboratory the contractor shall arrange to transport the cubes from the site to the laboratory and forward the test results to the Owner/Architects. The contractors shall bear all expenses in connection with the preparation test cubes, cost of concrete labour and transportation charges to the approved laboratory etc. including laboratory testing charges and his rate for concrete items shall be coated accordingly.

The Specimens shall be tested as per IS 516. The Samples may be tested at site laboratory generally but should be tested in any other Government Test House or approved laboratory whenever asked for by the Architect/Consultant for which no additional payment shall be made.

The concrete shall be deemed to comply with the strength requirements if, the individual variation is not more than  $\pm 15\%$  of the average strength of three specimens.

For mix design however, acceptance criterion will be decided based on "Standard Deviations" as per IS 456.

Concrete which does not meet the strength requirement shall be dealt with as under at the discretion of Consultant/Owner:

- i) The Structural adequacy of the parts affected shall be investigated and consequential action has needed shall be taken. Costs of any special tests to be advised by the Architect is to borne by the Contractor;
- ii) If it is advised by the Consultant to retain the concrete having strength less than that specified payment shall be made at a reduced rate pro-rata to the strength obtained;
- iii) If the deficiency in the opinion of the Architect/Consultant is such as to necessitate removal of the concrete from the structure, then on being so directed by the Architect/Consultant the Contractor at his own expense shall remove the portion of the concrete certified as deficient, and replaced by concrete of specified strength at no additional cost.

Where the strength of a concrete mix, as indicated by test, lies in between the strengths of any two grades specified in table 'A', such concrete shall be classified as a grade belonging to the lowest of 2 grades between which its strengths lie. In case the cube test strength shows higher strength than those specified for the particular grade of concrete such concrete shall not be placed in any higher grade nor the contractor shall be entitled for any extra payment on such account.

A register shall be maintained at the site by the contractors with the following details entered and initialled by the contractor and the Architect/Employer.

- i) Reference to specific structural members receiving the batch of concrete from which the cubes were cast;
- ii) Identification marks on cubes;
- iii) Mix of concrete;
- iv) Date and time of casting;
- v) Crushing strength as obtained at the end of 7 days and 28 days for each set;
- vi) Laboratory in which tested and certificate reference.

Concrete of each grade shall be assessed separately and shall be assessed daily for compliance. Concrete is liable to be rejected if it is porous or honey-combed, its placing has been interrupted without providing a proper construction joint, the reinforcement has been displaced beyond acceptable standards or construction tolerances have not been met. However, the hardened concrete may be accepted after carrying out suitable remedial measures to the satisfaction of the Consultant/Bank.

If nominal mix concrete made in accordance with the aggregate cement proportions given for the particular grade does not yield specified strength, such concrete shall be



classified as to belonging to the appropriate lower grade. Nominal mix concrete proportioned for a given grade shall not, however, be placed in higher grade than the minimum specified.

## **FORM WORK**

The form work shall be not less than 2.5 cms. thick and shall conformed to the shape , lines and dimension as shown on the plans and be so constructed as to remain sufficiently reject during the placing and compacting of the concrete and shall be sufficiently water tight to prevent loss of cement slurry from the concrete.

The allowable tolerances to form work shall be as under ;

- i) Deviation from specified dimension of cross-section of Columns and beams
  - -6mm
  - +12mm
- ii) Deviation from dimension of footing
  - a) Dimension in plan
    - -12mm
    - +50mm
  - b) Eccentricity
    - 0.02 times the width of footing in the direction of deviation but not more than 50mm.
  - c) Thickness
    - +0.05 times the specified thickness.

If directed by the Architects/Employer, craft paper or polythene sheets shall be used by the contractor to ensure water tightness without additional costs to the Employer Form work or centring shall be constructed of steel or timber or shuttering ply and adequately designed to support the impact load of full weight of wet concrete and labourers without deflection and retain its form during laying, ramming and setting of concrete. Timber used shall be properly seasoned so as to prevent warping when wetted. A camber in all direction of 6mm for every 5 m. span in all slab and beam centring shall be provided to allow for unavoidable sagging due to compression or other causes. All props either timber or steel, shall be straight and of full height and no joints shall be allowed. Where timber props like bullies are used, they shall have a minimum diameter of 100 mm and shall be straight and adequately strong. Props shall be braced with wooden battens and where additional staging is necessary extra care shall be taken to use bigger diameter props with bracing at 4 or 5 levels at no extra cost. All prop shall be supported on sole plates and double wedges. At the time of removing props, wedges shall be gently eased off and not knocked out.

All rubbish, chippings, shavings and saw dust shall be removed from the interior of the forms and shall be cleaned and thoroughly wetted or treated, if considered necessary, with non-sticking mineral oil or any other approved material before concrete is poured at contractor own cost. care shall be taken that oil or such approved material is kept out of contract with the requirement

Form work shall be removed when the concrete has reached a strength of at least twice the stress to which the concrete may be subjected at the time of removal of form work. This shall be stripped without shock or vibration and shall be cased 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 the superimposed load.

In normal circumstances (generally where temperatures are above 20°C and where ordinary Portland cement is used) forms shall be struck after expiry of the following periods unless otherwise directed at site by the Architects/Employer.

<u>Location</u>	<u>Striking time in days</u>
a) Vertical sides of walls, slabs, beams and columns.	2
b) Bottoms of slabs upto 4.5m span	7
c) Top of slabs above 4.5m span and bottom of beams upto 6m span	14
d) Bottom of beams over 6 m span	21

## **REINFORCEMENT CLEANING, BENDING, PLACING ETC.**

### **Cleaning of Reinforcement**

Before steel reinforcement is placed in position, the surface of the reinforcement shall be cleaned of rust, dust, grease and any other objectionable substances.

### **Bar Bending Schedule of Reinforcement**

On receipt of structural drawing, contractor shall prepare bar bending schedule of reinforcement and shall get approved by the Employer/Architect.

### **Cutting in Reinforcement**

Before steel reinforcement bars are cut, the contractor shall study the length of bars required as per drawing and shall carry out cutting only to suit the sizes required as per drawings.

### **Placing and Security**

Reinforcement bars shall be accurately placed and secured in position and firmly supported or wedged by precast concrete blocks of suitable thickness, at sufficiently close intervals so that they will not sag between the supports or get displaced during the placing of concrete or any other operation of the works. It is most important to maintain reinforcement in its correct position without displacement and to maintain reinforcement in its correct position without displacement and to maintain the correct specified cover. The contractor shall be responsible for all costs for rectification required in case the bars are displaced out of their correct positions.

### **Binding Wire**

The reinforcements shall be securely tied whenever they cross each other or whenever required for with 20 gauge black soft annealed steel wire. The cost of materials and labour required for binding the reinforcement shall be included in the contractor's quoted rate for reinforcement.

### **Welding**

Welding in lieu of splices may be carried out only after authorisation in writing by the Employer/Architect. Welding shall be carried out as per relevant IS Code of practice. However, no extra payment shall be allowed for the same.

**Bend etc.**

Bends, cranks, etc. in steel reinforcement shall be carefully formed, care being taken to keep bends out of winding. Otherwise all rods shall be truly straight. For any bend minimum radius of eight times diameter of the bar shall be used unless otherwise specified in the drawings. However, in respect of standard hooks the radius of bend shall be two times the diameter of bar. Heating of reinforcement bars of facilities bending will not be permitted. The bars shall always be bent cold. In case of mild steel reinforcement bars of larger sizes where cold bending is not possible they may be bent by heating with written permission of the Employer/Architect. Bar when bent shall not be heated beyond cherry red colour and after bending, shall be allowed to cool slowly without quenching. The bars damaged or weakened in any way in bending shall not be used on the work. High strength deformed bars shall in no case be heated to facilitate bending.

**Inspection of Reinforcement**

No concreting shall be commenced until the Employer/Architects have inspected the reinforcement in position and until their approval have been obtained. A notice of at least 72 hours shall be given to the Employer/Architect by the contractor for inspection of reinforcement. If in the opinion of the Employer/Architect any materials is not in accordance with the specification or the reinforcement is incorrectly spaced, bent or otherwise defective, the contractor shall immediately remove such materials from the site and replace with new and rectify any other defects in accordance with the instruction of the Employer/Architect to their entire satisfaction at his own cost.

**Stock Piling of Steel**

Reinforcement Steel required shall be stock piled well in advance of the need in the work.

**Cover for Reinforcement:**

Cover shall be measured from the outer surface of main reinforcement. Cover shall be as follows:

- a: At each end of a reinforcing bar, 25mm or twice the diameter of such rod or bar, whichever is greater.
- b: For longitudinal reinforcing bar in beam 25mm or the diameter of such rod or bar, whichever is greater.
- c: For tensile, compressive, shear or in other reinforcement in slab 15mm or the diameter of such reinforcement whichever is greater.
- d: For reinforcement in any other member such as a lintel, chajja, canopy or pardi, 15mm or the diameters of such reinforcements, whichever is greater.
- e: For main reinforcement in isolated footing (side & bottom) clear cover shall be 50mm
- f: For column bars clear cover shall be 40mm, unless otherwise specified in drawing.
- g: For bars in slabs of strip footings and mat foundations clear cover shall be 50mm. Slab bars shall be placed over beam bars in the case of beam and slab type foundation.
- h: For any other types covers as specified in I.S. 456 shall be provided.

**TYPICAL FORMAT FOR RECORDING MIX DESIGN RESULTS.**

Concrete mix design for M.....(Grade of Mix) proposed to be used in.....  
(designation & Levels of structure)  
Weight in Kilograms of

Cement	Coarse Aggregate	Fine Aggregate	Aggregate/ Cement ratio	Water/Cement ratio
1	2	3	4	5

Compacting factors for IS:1199	Results of preliminary tests cube strength at 7 days/ 28 days.	<u>Gradation of</u>		<u>Finess modules for</u>	
		Coarse Aggregate (C.A.)	Fine Aggregate (F.A.)	Coarse Aggregate (C.A.)	Fine Aggregate (F.A.)
6	7	8	9	10	11

<u>Specific Gravity of</u>		Cement	Absolute Volume	Density of cube by water displacement method
Coarse Aggregate	Fine Aggregate			
12	13	14	15	16

signature of the Testing Laboratory

Signature of the Contractors

**Pre-cast concrete:**

All thin pre-cast R.C.C. members shall be cast using plyboard base and timbered side shutterings. Casting on floor over stand-bed is not permitted.

Reinforcement cage to proper size as per design or instruction shall be placed after pouring concrete for the cover portion, duly levelled.

The top surface shall be finished smooth with additional cement in simultaneous operation.

Deshuttering shall be done carefully and rendering with cement mortar (1:3) shall be immediately carried out.

Pre-cast members shall be fixed in position only after 15 days curing.

## **SECTION- II**

### **BRICK MASONRY**

#### **BRICK WORK**

##### **General**

All brick work shall be carried out as shown on the drawings with set backs, projections, curvatures, cuttings, footings etc. No additional cost for use of cut bricks shall be allowed. Wherever the proportion of cement mortar has not been specifically mentioned, cement mortar in the proportion of 1:6 shall be used. Flat brick arches shall be provided wherever required without any extra cost. Brick work shall be kept wet while in progress, till mortar has properly set. Minimum curing period for masonry work shall be 10 (ten) days. On holidays or when work is stopped, 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 expense. All external brick work shall be done from outside by erecting rigid external scaffolds only.

##### **Brick Masonry**

##### **Soaking**

All bricks shall be immersed in water for twenty four hours before being put into work so that they will be saturated and will not absorb water from the mortar.

##### **Bats**

No bats or cut bricks shall be used in the work unless absolutely necessary around irregular openings or for adjusting the dimensions of different course and for closures, in which case, full bricks shall be laid at corners, the bats being placed on the middle of the courses.

##### **Laying**

Unless, otherwise specified, the brick work shall be laid in English bond. The brick shall be laid in cement mortar to line, level and thoroughly bedded in mortar and all joints shall be properly flushed and packed with mortar and no hollows left anywhere. Brick shall be handled carefully so as not to damage their edges. They should not also be thrown from any height to the ground but should be pit down gently. All courses shall be laid truly horizontal and all vertical joints made truly vertical. Vertical joints on the course and the next below should not come over one another and shall not normally be nearer than quarter of a brick length. Fixtures, lugs, frames etc. if any shall be built in at place shown in the plans while laying the courses only and not later by removal of bricks already laid unless otherwise instructed by the Architect.

Care shall be taken during construction to see that edges of bricks at quoins, sills, head etc. are not damaged. The vertically of the walls and horizontally of the courses shall be checked very often with plumb bob and spirit level respectively.

##### **Joints**

Joints shall preferably not exceed 10mm (about 3/8") in thickness. The Joints shall be raked out not less than 10mm (about 3/8") deep when the mortar is green where pointing is to be done. When the brick surface are to be plastered, the joints shall be raked to a depth of 5mm when the mortar is green so as to provide good key to plaster.

##### **Uniform raising**

Brick work shall be carried up regularly in all cases where the nature of work will admit, not leaving any part 60cm. lower than another. But where building at different

levels is necessary, the bricks shall be stopped so as to give later a uniform level and effective bond. Horizontal courses should be to line and level, and face plumb as shown on the plan. The rate of laying masonry may be upto a height of 80cm (about 32") per day if cement mortar is used, and 45cm (about 18") if lime mortar is used.

### **Scaffolding**

The scaffolding must be strong and rigid stiffened with necessary cross bearers and always decked and bared on the sills with close boarding/ceilings to prevent swings and injury to persons or damage to materials. The contractor shall have to allow other tradesman engaged by the Employer to make use of the scaffolding at no additional cost. Rate for brick work is to include all necessary costs for erection, maintenance and removal on completion of suitable scaffolding needed for the work. If for the interest of the work the contractor has to erect scaffolding in the other properties including local bodies/corporation, the arrangement for the same including licensing fees etc. shall be borne by the contractor and the employer is kept free from any liability on this account.

### **HALF BRICK WORK AND 75/65 MM THICK BRICK WORK**

The mortar mix for half brick and 75/65mm brick work shall be as specified in the schedule of quantities. Half brick thick and brick on edges walls shall be provided 20 BWG, wire netting reinforcements. For half brick thick wall and brick on edge wall wire netting shall be provided at every third course and at alternate course respectively with the netting 40mm mesh made of 20 SWG black soft iron wire.

### **BRICK FLAT SOLING**

For soling the bricks shall be picked jhama of approved brand, sound, hard, durable, dense, clean, and free from soft spots, cracks, decay and other defects. Brick Bat shall not be used. All the fillings shall be watered and compacted to get maximum consolidation. All necessary trimming or filling for laying of the soling in line and required grade shall be done. The sub-grade shall be marked by stacks and strings for required depth for laying of soling. The cushioning as well as filling of joints shall be done with local sand.

The bricks shall be laid on flat (unless otherwise specified) touching each other. Brick shall be laid in parallel rows breaking bond or in herring bond pattern as directed by the Architects and firmly embedded true to line and filled with local sand.

### **Solid Blocks**

Blocks are available as hollow and solid concrete blocks, hollow and solid light weight concrete blocks, autoclaved aerated concrete blocks, concrete stone masonry blocks and soil based blocks. Blocks shall be unloaded one at a time and stacked in regular tiers to minimize breakage and defacement. These shall not be dumped at site. The height of the stack shall not be more than 1.2 m. The length of the stack shall not be more than 3.0 m, as far as possible and the width shall be of two or three blocks. Blocks shall be of work size 190 mm high, 390 mm long and 290 mm/190 mm/140 mm/90 mm thick, and shall be solid unless detailed otherwise. Normally blocks cured for 28 days only should be received at site. In case blocks cured for less than 28 days are received, these shall be stacked separately. All blocks should be water cured for 10 to 14 days and air cured for another 15 days; thus no blocks with less than 28 days curing shall be used in building construction. The minimum compressive strength shall be 7.5 N/mm<sup>2</sup> for non-load-bearing block work and 12.5 N/mm<sup>2</sup> for load-bearing block work, using Ordinary Portland Cement and suitably graded fine and coarse aggregate, for use above damp-proof course level. The constituents of the concrete mix shall comply with the criteria laid down for constituents in the Concrete Specification. Blocks shall have a density (calculated by dividing the mass of the block by the overall volume) is not less than 1,800 kg/m<sup>3</sup>.

## **SECTION – III**

### **PLASTERING**

#### **Scaffolding**

Scaffolding for carrying out plastering work shall preferably be double 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 5mm. deep and concrete surface

hacked to provide the grip to the plaster. 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 remove dirt, dust etc. and the surface thoroughly washed with clean water to remove efflorescence, grease and oil etc. and shall be kept thoroughly wet prior to application of plaster.

#### **Ordinary cement plaster**

The preparation of surface shall be as stated above. The thickness and proportion of plaster shall be as specified in the schedule of items.

To mortar shall be applied evenly with force on the surface to be plastered. The mortar surface shall be finished at once by rubbed over with a trowel till the cement appears on the surface. All corners, angles and junctions shall be truly vertical and horizontal as the case may be and neatly finished. Rounding of corners and junctions where required shall be done without extra charges. Plastering in narrow grooves or making designed grooves or plastered surface are not separately payable. The mortar shall adhere to the surface intimately when set and there should be no hollow sound when struck.

The completed plastered surface shall be cured for a minimum period of 10 (ten) days.

## **SECTION IV**

### **FLOOR FINISHING**

#### **TERRAZO (MARBLE CHIPS) FLOORING LAID IN SITU:**

##### **General**

The thickness of the under layer shall be measured with a permissible tolerance of  $\pm 3$ mm. The thickness of the top layer after polishing shall be measured with a tolerance of  $\pm 1.5$ mm.

##### **Under Layer**

Cement concrete of specified mix shall be used. The panels shall be of sizes as directed by Architects/Employer and generally not exceeding 2 sq.m in area and 2M in length for inside situations. In exposed situations the length of any side of the panel

shall be preferably be not more than 1.25 metres or as directed. Cement slurry 2.00 Kg. per Sq.m shall be applied before laying of under layer over the cement concrete/R.C.C. surface.

### **Strip Fixing**

Glass strips or aluminium strips as given in the schedule shall be fixed with their top at proper level.

### **Top Layer**

Mortar: The mix for terrazzo topping shall consist of cement with or without pigment, marble aggregate (marble chips) and water. The cement and marble powder shall be mixed in the proportion of 3 parts of cement to one part marble powder by weight. For every part of cement marble powder mix, the proportion of aggregate by volume shall be as follows.

Size of Aggregate	Proportion of Aggregates to binder mix.
For predominantly grade 00,0 and 1	.. 1.50 parts
For predominantly grade 2 and 3	.. 1.25 parts
For predominantly grade 4 and 5	.. 1.25 parts
For mixed size aggregate	.. 1.50 parts

Before starting the work, the contractor shall get the sample of marble chips approved by the Architects. The cement to be used shall be ordinary grey cement, white cement, coloured cement or cement with admixture of colouring matter of approved quality in the ration specified in the description of the item or in the ratio to get the required shade as ordered by the Architects. Colouring matter where specified, shall be mixed dry thoroughly with the cement and marble powder and them marble chips added and mixed as specified above. The full quantity of dry mixture of mortar required for a room shall be prepared in a lot in order to ensure a uniform colour. This mixture shall be stored in a dry place and well covered and protected from moisture. The dry mortar shall be mixed with water in the usual way as and when required. The mixed mortar shall be homogeneous and stiff and contain just sufficient water to make it workable.

The terrazzo topping shall be laid while the under layer is still plastic, but has hardened sufficiently to prevent cement from rising to the surface. This is normally achieved between 18 to 24 hours after the under layer has been laid. A cement slurry preferably of the same colour as the topping shall be brushed on the surface immediately before laying is commenced. It shall be laid to a uniform thickness slightly more than that specified in order to get the specified finished thickness after rubbing. The surface of the top layer shall be trowelled over,, pressed and brought true to required level by a straight edge and steel floats in such a manner that the maximum amount of marble chips come up and are spread uniformly over the surface.



### **Polishing, Curing and Finishing**

Polishing shall be done by machine. About 36 hours after laying the top layer, the surface shall be watered and ground evenly with machine fitted with special rapid cutting grit blocks (carborundum stone) of coarse grade (No. 60) till the marble chips are evenly exposed and the floor is smooth. After the first grinding, the surface shall be thoroughly washed to remove all grinding mud and covered with a grout of cement or/ and colouring matter in same mix and proportion as the topping in order to fill any pin holes that appear. The surface shall be allowed to cure for 5 to 7 days and then ground with machine fitted with fine grit blocks (No. 120). The surface is cleaned and repaired as before and allowed to cure again for 3 to 5 days. Finally the third grinding shall be done with machine fitted with fine grade grit blocks (No.320) to get even and smooth surface without pin holes. The finished surface should show the marble chips evenly exposed where use of machine for polishing is not feasible or possible, rubbing and polishing shall be done by hand, in the same manner as specified for machine polishing except that carborundum stone of coarse grade (No. 60) shall be used for the 1st rubbing, stone of medium grade (No. 80) for second rubbing and stone of fine grade (No. 120) for final rubbing and polishing.

After the final polish either by machine or by hand, oxalic acid shall be dusted over the surface 33gm per square meter sprinkled with water and rubbed hard with a namdah block( Pad of woollen rags). The following day, the floor shall be wiped with a moist rag and dried with a soft cloth and finished clean.

Curing shall be done by suitable means, such as laying moist sawdust or ponding water. The finished floor shall not sound hollow when tapped with a wooden mallet.

### **Precautions:**

Flooring in lavatories and bath rooms shall be laid after fixing of water closet and squatting pans and floor traps. Traps shall be plugged, while laying the floors and opened after the floors are cured and cleaned, Any damage done to W.C.'s squatting pans and floor traps during the execution of work shall be made good by the Contractor.

The floor shall be protected from any damage during the execution of work.

### **TERRAZO (MARBLE CHIPS) SKIRTING -IN-SITU**

**Thickness:** The thickness of the bottom and top coats shall be as specified. The total thickness of skirting specified shall be the total thickness as measured from the unplastered face of the masonry. Finished thickness of the top coat shall not be less than 6mm.

### **ARTIFICIAL STONE FLOORING**

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 particulars, caked 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 for 12 hours and surplus water shall be removed by moping before the topping is laid.

#### **Laying:**

The screed strips shall be fixed over the base concrete dividing it into suitable panels as advised by the Architect/Employer. 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 shape and thoroughly tamped.

#### **Finishing the surface**

After the concrete has been fully compacted it shall be finished by trowelling or floating with neat cement rendering. Finishing operations shall start shortly after the compaction of concrete and the surface shall be trowelled 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 which trowelling is carried out. The time interval allowed between successive trowelling is very important. Immediately after placing cement rendering, only just sufficient trowelling shall be done to give a level surface. Excessive trowelling in the earlier stages shall be avoided as this tends to bring a layer rich in cement to the surface. Some time, after the first trowelling, the duration depending upon the temperature, atmospheric conditions and the rate of 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 trowelling shall be done well before the concrete has become too hard but at such a 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. The finished floor shall not sound hollow when tamped with a wooden mallet. The whole floor after laying shall be left flooded with water for at least 14 days.

### **SECTION- V** **EXTERNAL AND INTERNAL PAINTING WORKS**

#### **WHITE WASHING WITH LIME**

##### **Scaffolding**

Wherever scaffolding is necessary, it shall be so erected that no ballies, bamboos or planks shall rest on or touch the surface which is being white washed.

##### **Preparation of Surface**

Before new work is white washed, the surface shall be thoroughly brushed free from water droppings and foreign-matter.

In the case of old work, all loose peaces and scales shall be scrapped off and holes in plaster as well as patches of less than 50 Sq.cm. area shall be filled up with mortar of the same mix. Where so specifically ordered by the Architect/Owner the entire surface of old white wash shall be thoroughly removed by scrapping and which shall not be paid for separately and is to be included in the coated rates.

### Preparation of Lime Wash

The wash shall be prepared from good quality fresh stone white lime. The lime shall be thoroughly slaked on the spot mixed and stirred with sufficient water to make a thin cream. This shall be allowed to stand for a period of 24 hours and then shall be screened through a clean coarse cloth. 40 gms of gum dissolved in hot water shall be added to each 10cubic.deci.meter of the cream. The approximate quantity of water to be added in making the cream will be 5 litres of water to one Kg. of lime.

If not directed otherwise, Indigo (Neel) upto 3 gms/Kg of lime, dissolved in water, shall be added in wash stirred well. Water shall then be added at the rate of about 5 litres/Kg. of lime to produce a milky solution. In case of lime wash on the surface finished with lime punning, no Indigo (Neel) should be used unless otherwise directed by the Architect. Five parts of stone lime and one part of shell lime is to be used in the furnishing coat.

### Application

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

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

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

For old work, after the surface has been prepared in the manner stated earlier, a coat of white wash shall be applied over the patches and repairs. Then a single coat or two or more coats of white wash as stipulated in the description of the item shall be applied over the entire surface. The white washed surface should present a uniform finish through which the plaster patches do not appear. The washing on ceiling should be done prior to that on walls.

### Protective Measures

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

## **CEMENT PAINT**

### Preparation of Surface

For new work, the surface shall be thoroughly cleaned of all mortar dropping, dirt, dust, al-gae, grease and other foreign matter by brushing and washing. The surface shall be thoroughly wetted with clean water before the cement paint is applied.

In the case of old work, all loose pieces and scales shall be removed and the surface shall be cleaned of all dirt, dust, algae, oil etc. by brushing and washing. Pitting in plaster shall be made good and a coat of water proof cement paint shall be applied over patches after wetting them thoroughly.

#### Preparation of Mix

Cement paint shall be mixed in such quantities as can be used up within an hour of its mixing as otherwise the mixture will set and thicken, affecting flow and finish.

Cement paint shall be mixed with water in two stages. The first stage comprise of 2 parts of cement paint and one part of water stirred thoroughly and allowed to stand for 5 minutes. Care shall be taken to add the cement paint gradually to the water and not vice versa. The second stage shall comprise of adding further one part of water to the mix and stirring thoroughly to obtain a liquid of workable and uniform consistency. In all cases the manufacturer's instructions shall be given preference over the above specification, in case variation between the two exists.

The lids of cement paint drums shall be kept tightly closed when not in use, as by exposure to atmosphere the cement paint rapidly becomes air set due to its hygroscopic qualities.

#### Application

The solution shall be applied on the clean and wetted surface with brushes or spraying machine. The solution shall be kept well 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 method of application of cement paint shall be as per manufacturer's specification. The completed surface shall be watered after the day's work.

The second coat shall be applied after the first coat has been set for at least 24 hours. Before application of the second or subsequent coats, the surface of the previous coat shall not be wetted.

#### Precaution

Water proof cement based paint shall not be applied on surfaces already treated with white wash, colour wash, distemper dry or oil bound, varnishes, paints, etc. It shall not be applied on gypsum, wood and metal surfaces.

The specifications in respect of scaffolding, protective measures, measurements and rate shall be as described under white washing with lime.

### **PAINTING**

Approved paints, oils or varnishes shall be brought to the site of work by the contractor in their original containers in sealed condition. The materials shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The empties shall not be removed from the site of work, till the relevant item of work has been completed and permission obtained from the Architects/Owner. Ready mixed paint as received from the manufacturer without any admixture shall be used.

#### Commencing work

Painting shall not be started until the Architects/ Owner has inspected the items of work to be painted, satisfied themselves about their proper quality and given their

approval to commence the painting work. Painting of external surface should not be done in adverse weather condition like hail storm and dust storm.

The rooms should be thoroughly swept out and the entire building cleaned up, at least one day in advance of the paint work being started.

#### Preparation of surface

The surface shall be thoroughly cleaned and dusted. All rust, dirt, scales, smoke and grease shall be thoroughly removed before painting is started. The prepared surface shall receive the approval of the Architects/Owner after inspection, before painting is commenced.

#### Application

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in the containers. When applying also, the paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform.

If for any reason, thinning is necessary in case of ready mixed paint, the brand of thinner recommended by the manufacturer or as instructed by the Architects/Owner shall be used.

The painting shall be laid on evenly and smoothly by means of crossing and laying off, the latter in the direction of the grain of wood. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite direction, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off is finished. The full process of crossing and laying off will constitute one coat. Where so stipulated, the painting shall be done by spraying. Spray machine used may be (a) high pressure (small air aperture) type, or (b) a low pressure (large air gap) type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought to the requisite consistency by adding a suitable thinner.

Spraying should be done only when dry condition prevails. Each coat shall be allowed to dry out thoroughly and rubbed smooth before the next coat is applied. This should be facilitated by thorough ventilation. Each coat except the last coat, shall be lightly rubbed down with sand paper or fine pumice stone and cleaned off dust before the next coat is laid.

No left over paint shall be put back into the stock tins. When not in use, the containers shall be kept properly closed.

No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of mouldings etc. shall be left on the work.

In painting doors and windows, the putty round the glass panes must also be painted; but care must be taken to see that no paint stains etc. are left on the glass. Top of shutters and surfaces in similar hidden locations shall not be left out in paint.

In painting steel work, special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

#### Brushes and containers

After work, the brushes shall be completely cleaned of paint by rinsing with linseed oil or with turpentine. A brush in which paint has dried up is ruined and shall on no account be used for painting work, the containers when not in use, shall be kept closed and free from air so that paint does not thicken and also shall be kept closed and free from air so that paint does not thicken and also shall be kept safe from dust. When the paint has been used, the containers shall be washed with turpentine and wiped dry with soft clean cloth, so that they are clean, and can be used again.

## PRIMING COAT ON WOOD, IRON OR PLASTERED SURFACE

### Preparation of Surface

#### i) Wooden Surface

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

The surface shall be thoroughly cleaned. All unevenness shall be rubbed down smooth with sand paper and shall be well dusted. Knots, if any, shall be covered with preparation of red lead made by grinding red lead in water and mixing with strong glue sized and used hot. Appropriate filler material with same shade as paint shall be used where specified.

The surface treated for knotting shall be dry before painting is applied. After the priming coat is applied, the holes and indentations on the surface shall be stopped with glazier's putty or wood putty. The primer shall be prepared on site or shall be of approved brand and manufacture as specified in the item. Paint shall be bitumen paint/aluminium paint or other types of paint as specified in the description of the item. Stopping shall not be done before the priming coat is applied as the wood will absorb the oil in the stopping and the latter is therefore liable to crack.

#### ii) Iron & Steel surface

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

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

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

#### iii) Plastered Surface

The surface shall ordinarily not be painted until it has dried completely. Trial patches of primer shall be laid at intervals and where drying is satisfactory, painting shall then be taken in hand. Before primer is applied, holes and undulations, shall be filled up with plaster of Paris and rubbed smooth.

### Application

The primer shall be applied with brushes, worked well into the surface and spread even and smooth. The painting shall be done by crossing and laying off as described in cement paint above.

## **PAINTING WITH READY MIXED PAINT/SYNTHETIC ENAMEL PAINT**

### **Preparation of Surface**

#### **i) Wood Work**

The surface shall be cleaned and all unevenness removed as specified in wooden surface. Knots if visible, shall be covered with a preparation of red lead. Holes and indentations on the surface shall be filled in with glazier's putty or wood putty and rubbed smooth before painting is done. The surface should be thoroughly dry before painting.

#### **ii) Iron and Steel work**

The priming coat shall have dried up completely before painting is started. Rust and scaling shall be carefully removed by scrapping or by brushing with steel wire brushes. All dust and dirt shall be carefully and thoroughly wiped away.

#### **iii) Plastered surface**

The priming coat shall have dried up completely before painting is started. All dust or dirt that has settled on the priming coat shall be thoroughly wiped away before painting is started.

### **Application**

The specification described in Cement Paint shall hold good as far as applicable. The number of coats to be applied will be as stipulated in the item. The painted surface shall present a uniform appearance and glossy/mat finish as described in schedule of quantities free from streaks, blisters etc.

## **LIME RUNNING**

### **Scaffolding**

Wherever scaffolding is necessary, it shall be erected in such a way and protective measures taken so that the surface treated is not damaged during shifting/removing of scaffolds.

Where ladders are used, pieces of old gunny bags shall be tied on their tops to avoid damage or scratches to walls.

### **Mixing**

The lime paste shall be prepared as follows:

- i) Shell lime and stone lime is slaked separately in vats.
- ii) 2 parts of slaked shell lime and 1 part of slaked stone lime is then thoroughly mixed and allowed to mellow under slaking tank.
- iii) The surplus water on the top is then allowed to be drained out.
- iv) The paste is then sieved through fine muslin cloth to remove all unslaked lime and foreign matters. 6 parts of the above paste and 1 part of white sand by volume is then mixed thoroughly with water for appropriate consistency for application in the surface to be treated.

The surface of the under coat on which the punning is to be done shall be left rough. The punning shall be applied after adequate watering on surfaces. The mortar for punning shall be applied in a uniform layer of about 3mm thick between gauged pads, with which to ensure an even and uniformly thick surface by frequent checking with a wooden straight edge. It shall be finished to an even shade and smooth surface with steel towels.

All corners, angles and junctions shall be truly vertical and horizontal as the case may be and shall be carefully and neatly finished. Rounding or chamfering corners, junctions etc. where required, shall be punned without any extra payment. Such rounding or chamfering shall be carried out with proper templates to the sizes required.

#### Thickness

The thickness of the finished punning shall not be less than 1.5mm thick at any place.

#### Curing

Curing shall be started as soon as the punning has sufficiently hardened not to be damaged when watered, and in any case not earlier than 24 hours after the punning has been completed. The punning shall be kept wet for a period of at least seven days. During this period, it shall be suitably protected from all damages at this period. It shall be suitably protected from all damages at the Contractor's approve. The dates on which the plastering is done shall be legibly marked on the various sections plastered so that curing for the specified period thereafter can be watched.

#### Precaution

Any, cracks which appear in the surface and all portions, which sound hollow when tapped, or are found to be soft or otherwise defective, shall be cut out in rectangular shape and redone as directed by Architects/Owner.

### **SECTION – VI**

#### **SPECIFICATIONS FOR WATER PROOFING**

##### **1. DAMPROOF COURSE (D P C )**

D P C shall be of thickness as shown in drawing or in drawing or in the schedule of quantities. Unless otherwise mentioned, proportion shall be 1 part cement, 2 parts of sand 4 parts of aggregate mixed with approved water proofing compound as per manufacturer's specification. Before laying the concrete, the top surface of the wall shall be thoroughly cleaned of all dirt and loose particles, mortar droppings and laitance, if any, scrubbing with coir or steel wire brush or by hacking, if necessary. The surface is then thoroughly wetted and the concrete is placed . The concrete shall be laid in every case for the full width of the plinth or as shown in drawing. The top

surface shall be kept rubbed or rough or double-chequered for adhesion of mortar for brick work. Proper curing shall be done before starting the brick work over D P C .

##### **2. LIME TERRACING**



## MATERIALS

Brick khoa or chips : Brick aggregates shall be cleaned and washed 25 mm gauge from 1st class bricks only.

Lime : Lime used shall be hydraulic lime conforming to IS : 712 and shall be slaked according to IS : 1935.

Surki : Surkhi used shall be from first class bricks only.

## SPRINKLING WATER

The following proportions of specified materials shall be mixed in 20 liters of water –

Molasses	:	1.03 Kg.
Katha	:	0.26 Kg.
Methi	:	0.13 Kg.
Maskalai Das	:	0.52 Kg.

This water is to be sprinkled, as specified further, 10 Sq. m. of surface.

## PROPORTION

Brick Aggregates:	7 parts	
Slaked lime	: 2 parts	(By Volume)
Surki	: 2 Parts	

## MIXING

The brick aggregate lime and surkhi mix, shall be heaped to a predetermined height depending upon the quantity of material required for a particular portion to be treated. Water shall then be added and matured under a damp condition to remove all traces of unslaked lime. The materials shall be turned over several times to ensure a thorough mix and proper slaking.

## WORKMANSHIP

The surface shall be cleaned of all dirt, loose particles, dust etc. before lime concrete is placed. The mix shall be gently deposited on the surface and laid to proper falls and cross falls, levelled to levels indicated on the drawing. Only fresh concrete is to be laid concrete left over from previous days work shall be in no circumstances be used. The compaction by hand-tampers shall be carried out for a minimum period of seven days with 3 beaters to 10 Sq.m. During the first four days of beating, sprinkling water, as specified, shall be added. For the next three days lime water shall be added to the surfaced during compaction. The compaction shall be continued till beating with wooden mallets emits a ringing sound.

After the compaction is completed, a thick coating of lime paste shall be applied and rubbed smooth and the surface shall then, be covered with straw, and water shall be sprinkled for a further period of seven days and then flooded up to a height of 75mm to 100mm.

After one month, the surface shall be cleaned and rubbed with linseed oil. Ghoondies (cove) at 4" (100mm) radius shall be formed at least 2" (50mm) above the edges of the terracing at its junction with parapet walls. The top edge of this at this junction with par parapets shall be protected by a brick or concrete oversailing course as shown on the drawings or mentioned in the schedule of quantities with weathered cement fillet and properly throated below. This shall be clear of the upper edge of the ghoondies, so that water drops down on the level area of the terracing clear of the ghoondies. The mouth of rain water pipes shall be properly finished. The stages of the finished terrace shall not be less than 1 in 48 and the minimum thickness of concrete at junction of parapet shall be not less than 75mm. The concrete should be leak proof and free from cracks.

#### CONTRACTOR'S RATE TO INCLUDE

Apart from all other factors mentioned elsewhere in the contract, the contractor's rate for carrying out the above shall include the following :

Supply of all labour, materials, tools and tackles for carrying out the work as per drawing and specifications.

Preparation of surface.

Forming ghoondies and oversailing course as specified.

Curing as specified.

Cleaning the roof, maintaining the work properly till handed over.

#### METHOD OF MEASUREMENT

The measurement shall be made net in square metre for surface area of terracing wall to wall.

#### MODE OF MEASUREMENTS

The method of measurement for various items in the tender shall be generally in accordance with the latest CPWD practice subject to the following:

##### *1. Excavation :*

- (a) Footings : Area of Excavation shall be measured equal to the area of the lowest concrete course or brick flat soling or dry rubble packing as shown on the drawing. Depth shall be measured vertically from ground level to bottom of concrete course or dry rubble packing or brick flat soling as the case may be*
- (b) Plinth beams : Depth of excavation for plinth beam shall be measured from ground level upto bottom of beam and width equal to width of beam. If a levelling course is ordered, it shall be measured up to the bottom of the levelling course.*
- (c) Where excavation is made in trenches, measurements for cutting shall be taken by means of tape and staff and the width of concrete or rubble packing or brick flat soling as shown on the Drawing shall be considered as width of excavation.*
- (d) Where excavation is made for levelling 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.*

- (e) *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. Excavation of hard rock shall be measured from stacks of excavated hard rock and reduced by 50% for bulk age and voids. 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.*
- (f) *Any additional excavation required for working space, form work, Planking, dewatering, strutting etc. Shall not be measured and paid for separately but rates quoted for excavation shall include for all these factors. No increase in bulk after excavation shall be made.*

## **2. Earth filling:**

*In open spaces : Filling shall be measure from cross section 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 of lorry measurements with previous written permission from the Architect and 20% deduction shall be from the measured quantity to arrive at the net quantity payable*

### **Earth filling in plinth:**

*The payment of earth filling in plinth shall be made on measurement of finished consolidated quantity.*

### **Disposal :**

*If payable the net volume shall be based on theoretical calculation.*

## **3. Cement Concrete (Reinforced)**

Cement concrete in R.C.C. items shall be measured in cum. without reduction for volume of reinforcements and other inserts.

Items like R.C.C. precast jali, 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 schedule of quantities shall be measured inclusive of reinforcement.

No deduction will be made for openings up to 0.1 sq.mm. and no extra labour for forming such opening or voids shall be paid for.

Columns shall be measured from the top of the footing and shall be measured through the slab including flare of the column in case of flat slab construction.

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

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

Slab (other than in raft foundation) shall be measured in between bays of beams with deduction for column portion.

Chajja : Only projected portion shall be measured.

Staircase : Measurements shall be in Cu.M. staircase comprising of step, soffit slab, landing slab shall be measured and paid under this item. Side parapet walls, railings, finishing of risers and treads, M. S. reinforcement and plastering etc. shall be paid separately under respective times.

#### 4. Reinforcement :

Shall be measured in lengths of bars as shown in drawing. Weight will be calculated as per standard tables with 3 places of decimals; 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.

##### Form work :

Area in contact with concrete shall be measured and paid for. In case of formwork below ground level, no extra shall be payable for earth work in excavation / filling required for such formwork.

#### 5. Brick Work :

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

Under otherwise mentioned wall of half-brick thickness or less shall each measured separately and given in square metres stating the thickness.

##### Thickness of wall :

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

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

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

##### Deduction :

No deduction or additions shall be made on any account for

- (1) ends of dissimilar materials (i.e. joists, beams, lintels, lofts, girders, rafter, purlins, trusses, corbels, steps etc.) up to 500 square centimetres in section.

(2) Openings up to 0.1 Sq.m. in section.

(3) Wall plates, bed plates and bearing of slabs, chajjas and the like where the thickness does not exceed 10cm. and the bearing does not extend over the full width of the wall.

6. Wood Work :

Wood work wrought and framed shall be measured for finished dimensions. No allowance shall be made for wastage and for dimensions supplied beyond those specified. Length of each piece shall be measured overall nearest to a cm. so as to include projections for tenons, scarves or mitres, width and thickness shall be measured to the nearest mm. Cubical contents shall be worked out in units of 10 cubic decimetre in whole numbers.

In case of mouldings, roundings, rebates, circular and varying sections, the sectional area of the piece shall be taken as the area of the least square or rectangles from which such a section can be cut.

7. 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 not be measured. All composite units shall be measured as fixed. Extra for side hung, top hung and centre hung portions shall be measured from outside of the casement frames.

8. Steel rolling shutters and rolling grills :

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.

9. Collapsible Gate :

The height of the gate shall be measured as the length of the double channels and breadth from outside to outside of the end fixed double channels in open portion of the gate.

10. Flooring, Skirting, Dado :

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

The skirting and dado shall be measured clear from the floor to the top of tile, and length shall be between finished tiles faces measured along the floor.

The measurement of floor, skirting and dado shall be in Sq.m.

11. Plastering & Pointing :

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

Net area of surface plastered (the area of the surface before plastering) shall be measured after deducting half the area of openings. Jambs and soffits, will not be separately added. No deduction will be made for ends of joints, beams, posts, etc.

Plastering in narrow grooves or for designed grooves shall not be separately paid for.

12. Painting, French polishing, White washing, Colour washing and Distempering :

All painting work shall be measured in accordance with IS : 1200.

13. Lime Punning – same as Plastering.

Note :- All work under this contract shall be carried out in accordance with the technical specifications specified in the contract. However, if specifications for any item has not been specified in the contract, the relevant Indian Standard specification applicable to the particular class of work shall apply. In case of any confusion or dispute regarding the meaning and interpretation of any specification for any item, the decision of the Employer / Architects shall be final and binding on the contractors.

## LIST OF MATERIALS OF APPROVED BRAND AND/OR MANUFACTURE

CEMENT	:	OP Cement or Slag Cement of A.C.C., L&T, Malabar, Zuvari, Penta.
STEEL	:	Tata, SAIL, TISCO, METCOM, or any ISI approved manufacturer/Re-roller.
VIRTRIFIED TILES	:	1st quality tiles of H&R Johnson/KAJARIA, 1st quality tiles of 'Somani', Cera
FLUSH DOORS	:	National Plywood, Kit ply green or equivalent ISI approved products. Jackson etc
PLYWOOD/PRODUCTS	:	National, Kit-ply, or equivalent ISI approved products.
STEEL DOORS, WINDOWS & VENTILATORS	:	(i) Bahar Bobbin & Engg. Works (ii) 'Steelex' Industrial Corporation (iii) ISI approved manufacturer.
WATER PROOFING COMPOUNDS	:	Bostik, Fosroc, BASF
PAINTS & DISTEMPERS	:	I.C.I., British Paints, Asian Paints, Janson Nicholson.
WATER PROOF CEMENT PAINTS	:	Asian, Nippon, Berger, nerolac
GLASING SHEET GLASS	:	St: gobain, Modiguard.
HARDWARE FITTINGS		
1. Ferrous	:	'Mowjee' or equivalent ISI approved manufacturer.
2. Non-ferrous	:	'METACO', 'ARGENT' or equivalent ISI approved manufacturer.
3. Door Closer	:	'Ranjan', 'Everite' or equivalent ISI.
BRICK KOPA WATER PROOFING TREATMENT	:	India Water proofing Cp., Bombay, Overseas Waterproofing Corporaion.
SAND, FINE AGGREGATES, COARSE AGGREGATES, BRICKS, STONE SLAB, LIME, NEERU	:	To be got approved before use.
PRESSED STEEL DOOR FRAME	:	Multiwyn, T.I. Industries.
ALUMINIUM SECTION	:	JINDAL/INDAL/ EQUIVALENT
PVC pipe	:	Supreme, Finolex