

NIT NO	SBI/HYD/IAD/2024-25/002
DATE	13.11.2024

PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK IAD NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.



TENDER SCHEDULE.

*** Civil contractors who are empanelled with SBI-LHO, Hyderabad Rs. 50 lakhs and above category are only eligible to participate***

THROUGH TWO BID E-TENDERING PROCESS

**The Assistant General Manager (Admin),
State Bank of India,
Internal Audit Department,
Admin Wing, Corporate Centre,
State Bank Nireekshan Bhavan,
Lingampally Post, Hyderabad
Telangana - 500019
Ph No:8688491040
Email: agmadmin.iahyd@sbi.co.in**

CONSULTANTS:



**M/S abhikram-s
architects, interior designers, urban planners
valuers & project managers
#3-6-134 FLAT NO 302
SVC ROYAL DM APARTMENTS
STREET NO 18, HIMAYATNAGAR
HYDERABAD-500029
ph.no 040-35561296
abhikramarchitects@gmail.com**

NOTICE INVITING TENDER (NIT)

NAME OF WORK: On behalf of SBI invites e-TENDER FOR PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.

1.	Name of the work	e-TENDER FOR PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK IAD NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.
2.	Estimated cost	Rs. 43,77,735.00/- + plus GST
3.	Quantum of Earnest Money Deposit (EMD)	Rs. 44,000.00/- Drafts/BCs shall be in favor of “Assistant General Manager, (Admin), Internal Audit Dept, Hyderabad” Payable at Hyderabad.
4.	Date and Time where tender forms are available	FROM 13.11.2024 at www.sbi.co.in/ SBI in the News procurementnews and https://etender.sbi
5.	Last date and time of submission of online Tender	27.11.2024 Up to 03:00PM
6.	Place, date &time for submission of e tender Contact person /telephone no/email address.	a) On line submission up to 27.11.2024 Up to 03:00PM at https://etender.sbi b) EMD& Cost of tender Document submission Address: The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019. 27.11.2024 Up to 03:00PM Contact: Assistant General Manager (Admin) Ph No:8688491040 Email: agmadmin.iahyd@sbi.co.in
7.	Date, Time and Place of opening of e-Tenders	27.11.2024 Up to 03:10 PM The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019.
8.	Quantum of Security Deposit (percentage)	1. Initial Security Deposit (ISD) – 2% of the Tender value including EMD 2. Retention Money- 5 % of the running bills and Total deduction of 5% of value of work including EMD, ISD.

9.	Terms of payment of Bills, if any (specify the minimum value of work for payment of running account bills)	Each running bill of Rs. 10.00 Lacks and above
10.	Stipulated time for completion of the Work/supply.	60 Days.
11.	(Penalty clause) Liquidated Damages	@ 0.5% of the value of work per week of delay subject to a maximum penalty of 5% of the value of work would be strictly imposed.
12.	Validity period of the tender.	Twelve (12) Months
13.	Defect Liability Period	Twelve (12) Months
14.	Eligible Taxes	<p>A) Income Tax & GST IT will be deducted at source as per Govt. Guidelines.</p> <p>B) Reimbursement of GST will be made only on submission of proper GST invoice as per applicable GST provision. The contractor should comply with the following;</p> <ol style="list-style-type: none"> 1. Contractor should have GST Registration Number 2. Invoice should specifically/separately disclose the amount of GST levied at applicable rate as per GST provision 3. In case of Correction in the bills after scrutiny, contractor should submit fresh bills for payment 4. Contractor should timely file his GST return in accordance with GST provisions to enable the bank to claim the credit of GST paid to the contractor 5. The GST Number of State Bank of India are For Telangana State -36AAACS8577K1ZQ
15.	Electronic Payment	Payment shall be made by way of Electronic fund transfer and the bill will be paid by the Branch. Firm should furnish details of the bank, a/c no, IFSC code
16.	Agency for arranging online bidding	<p>e-Procurement technologies Limited, Ahmedabad.</p> <p>Primary Contact:</p> <ol style="list-style-type: none"> 1. Anshul Juneja:- 079-68136840, anshul.juneja@eptl.in 2. Kanchan Kumari:- 079-68136820, kanchan.k@eptl.in 3. JaymeetRathod:- 079-68136829, jaymeet.rathod@eptl.in 4. Salina Motani:- 079-68136843, salina.motani@eptl.in 5. VinayakKhambe:-079-68136835, vinayak.k@eptl.in 6. ImtiyazTajani :- 079-68136831, imtiyaz@eptl.in 7. HemangiPatel:- 079-68136852, hemangi@eptl.in 8. Nadeem Mansuri:-079-68136853, nadeem@eptl.in 9. Deepak Narekar:- 079-68136863, deepak@eptl.in 10. Sujith Nair:- 079-68136857, sujith@eptl.in 11. Devang Patel:- 079-68136859, devang@eptl.in

17.	Any additional Information	The quoted rate should be inclusive of materials, labour, wages, fixtures, transportation, installation, all taxes (excluding GST), wastages, Octroi, machinery, temporary works such as scaffolding, cleaning, overheads, profit, statutory expenses, incidental charges and all related expenses to complete the work
18.	EVALUATION OF PRICE BIDS AND FINALIZATION	<p>1. Only those Bidders who qualify in Technical evaluation would be shortlisted and the online price bid submitted by the bidder will be opened.</p> <p>2. The L1 Bidder will be selected on the basis of net total of the price evaluation as quoted in the Online bidding.</p> <p>3. In case, the L1 amount quoted by two or more contractors is the same, such lowest contractors will again be asked to submit sealed / online “ Revised + Percentage Offers” on the original Estimated Cost of tender but the revised percentage shall, in no case, be higher than the percentage quoted during their initial offer for the project. The L1 shall be decided on the basis of revised offers.</p> <p>4. The process of online rebidding amongst the two or more contractors offering same rates shall continue till L1 bidder is discovered. If required, PL shall conduct reverse auction to discover the L1 bidder.</p> <p>5. In case, any of such contractors or all contractors (who have quoted same tender amount in the initial bidding or subsequent bidding) refuse to submit revised offer, it shall be treated as “Withdrawal of tender” by the Contractor before acceptance by PL and the EMD of such contractors shall be forfeited and they shall not be allowed to participate in the re-tendering process for the work.</p> <p>6. If the final L1 bid is unreasonably low ie L1 bid is less by 10% or more of the Estimated Cost, the contractor shall submit additional Security Deposit in the form of PBG/DD for an amount equal to difference in the estimated cost vis-a-vis final tender amount quoted by the L1 contractor. PBG/DD to be submitted within 7 days from issue of letter from /Bank.</p> <p>7. If the L1 bidder refuses to give the PBG, then the</p>

		EMD will be forfeited and the tender will be re-invited. The L1 bidder will not be allowed to participate in the retendering process.
19.		<p>If the final L1 bid is below 7.5% of the estimated cost then the L-1 contractor has to submit Additional Security Deposit (ASD)/Additional Performance Guarantee (APG). The amount of such ASD / APG shall be the difference between 92.5 % of estimated cost put to tender and the quoted price.</p> <p>Bank Guarantee or FDR receipt favoring Asst. General Manager (Admin), Internal Audit Dept, Hyderabad, but drawn on any other Nationalized Bank may also be accepted as ASD / APG.</p>

Following documents to be scanned and uploaded :-

- 1. Scanned copy of Tender cost and EMD must be uploaded and the same needs to be submitted at given address within due date of tender**
- 2. Firm should be visit the website (<https://etender.sbi>) till last date of submission for changes. corrigendum if any will be published only in <https://etender.sbi>**
- 3. L-1 Tenderer signed copy of entire tender document should be submit within 3 days from date of tender opening**

Assistant General Manager

1. INSTRUCTIONS TO THE TENDERER

1. This tender is for the " **PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK IAD NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.**" It is a Two Bid containing Technical bid and 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. Clients/Architects reserve 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.

3. 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 ABHIKRAM-S Architects, Interior Designers, Urban Planners, Valuers & Project Managers. #3-6-134, Flat No-302, SVC Royal DM Apartments, Street No-18, Himayat Nagar, Hyderabad-500029.**

5. Employer or Client shall mean The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad
Telangana – 500019.

2. FORM OF TENDER

PROJECT: PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK IAD NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.

REF : CIVIL CONSTRUCTION WORKS.

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 ABHIKRAM-S Architects, Interior Designers, Urban Planners, Valuers & Project Managers. #3-6-134, Flat No-302, SVC Royal DM Apartments, Street No-18, Himayat Nagar, Hyderabad-500029.**

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 and at which rate the items specified amount **to Rs. 43,77,735.00**

I/We are depositing as Earnest Money a sum of **RS. 44,000.00/-** in favor of The Assistant General Manager (Admin), Internal Audit Dept, Hyderabad payable at Hyderabad 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, less EMD paid in the event of my/our tender being accepted, towards initial security deposit.

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, within 15 days of receipt of work order, in default thereof, I/We do hereby bind my-self/ourselves to forfeit the aforesaid initial security deposit.

I/We further agree to complete the work covered in the said schedule of quantities within 12 months from the 15th 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 your Architects for this contract work.

I/We agree to and to get the work, workers, employees (of contractor, Architect & Employer) 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 by 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:

3. NOTICE TO CONTRACTOR

ADDRESS:

PROJECT: PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK IAD NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.

REF : CIVIL CONSTRUCTION WORKS.

Dear Sirs,

On behalf of our clients, The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad, Telangana - 500019. we have pleasure in inviting you to tender for the aforesaid work.

1. The scope of work broadly as given below is for Proposed Interiors for **PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE (RCC STRUCTURE) AT STATE BANK IAD NIREEKSHAN BHAVAN, LINGAMPALLY POST, HYDERABAD, TELANGANA-500019.**
2. **Tender Documents should be filled and uploaded on the site of M/S e-procurement Technologies Limited. E-mail: anshul@auctiontiger.net**
3. 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.
5. 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.
6. 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.
7. Each and every one of all erasures and additions/alterations made, while filling the tender, must be attested by initials of the tenderer. Over-writing of figures 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.

8. The tender shall be valid for a period of 365 days from the date of opening.
- 9 TOTAL SECURITY DEPOSIT: shall comprise of:
 - a. Earnest Money deposit
 - b. Initial Security deposit
 - c. Retention money
- 9.1 The intending tenderer shall deposit with The Assistant General Manager (Admin), Internal Audit Dept, Hyderabad, by Demand Draft a sum of **RS. 44,000.00/-** as 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 adjusted towards Security Deposit. A tender not accompanied by Earnest money deposit will not be considered.
- 9.2 **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 Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019. Within 14 days from the date of issue of work order to commence work. The EMD and Security deposit thus paid shall be held by the State Bank of India as 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.**
- 9.3 Together with the money paid under clause 11.1 & 11.2 above, further retention of 10% of the value of the work done will be deducted from every running bill, till total retention, including EMD and 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 Bank. Also refer condition 23(ii) .
10. Within one month of the receipt of intimation from the 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 stipulated time as per NIT. The date of commencement shall be within ONE WEEK after confirmation.
 - a) The day two weeks from the date of issue of work order.

Or

- b) The day on which the contractor receives the possession of the site which ever is later.

Or

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

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 as per NIT. 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) as per clause 31 of the General conditions of contract.
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.
17. Our clients, **The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019**, 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 SBI bank is allowed to work as a contractor for a period of two years of his retirement from bank service, without the previous permission of the bank. This contract is liable to be cancelled, if either the contractor or any of his employees is found at any time to be such a

person who had not obtained the permission of the bank as aforesaid before submission of the tender or engagement in the contractor's service.

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) INTERIOR (2) Air conditioning works (3) Fire fighting systems & (6) Interiors (fixed furniture), as the case maybe.
20. Release of security deposit:
 - i) 100% of Retention money 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.

ARCHITECTS:

**M/S abhikram-s
architects, interior designers, urban planners
valuers & project managers
#3-6-134 FLAT NO 302
SVC ROYAL DM APARTMENTS
STREET NO 18, HIMAYATNAGAR
HYDERABAD-500029
ph.no 040-23261158
abhikramarchitects@gmail.com**

5. ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT made the _____ day of _____ 2024 between

of _____

(hereinafter called the “Employer”) of the one part and _____
of _____ (hereinafter called “The Contractor”) of the other
part, where as 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 ABHIKRAM-S Architects, Interior Designers, Urban Planners, Valuers & Project Managers. #3-6-134, Flat No-302, SVC Royal DM Apartments, Street No-18, Himayat Nagar, Hyderabad-500029.**

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.
3. The term “Architect” in the said conditions shall mean the said **M/S ABHIKRAM-S Architects, Interior Designers, Urban Planners, Valuers & Project Managers. #3-6-134, Flat No-302, SVC Royal DM Apartments, Street No-18, Himayat Nagar, Hyderabad-500029.** 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 , not being a person to whom the contractor shall object for reasons considered to be sufficient by the Arbitrator mentioned in the said conditions 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.
4. 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.

5. 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.
6. 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.
7. 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 15 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 **AS PER NIT** subject to nevertheless to the provisions for extension of time.
8. This agreement and contract shall be deemed to have been made in Hyderabad 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 Hyderabad and only the courts in Hyderabad shall have jurisdiction to determine the same. The limitation period will be 90 days from the date of dispute having arisen.

AS WITNESS our hand this _____ day of _____ 2024

Signed by the said in the presence of:

WITNESS : SIGNATURE

NAME :

ADDRESS :

EMPLOYER

WITNESS : SIGNATURE

NAME :

ADDRESS :

6. 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. Prices of Extras etc., Ascertainment of
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. Supervision of works
36. Prime cost and provisional sums
37. Certificates and payments
38. Notices
39. Termination of contract by the Employer.
40. Termination of contract by the contractor.
41. Matters to be finally determined by the Architects
42. Settlement of dispute (Arbitration)

7. 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 **The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019** 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 SBI 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 ABHIKRAM-S Architects, Interior Designers, Urban Planners, Valuers & Project Managers. #3-6-134, Flat No-302, SVC Royal DM Apartments, Street No-18, Himayat Nagar, Hyderabad-500029.**
- 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 SBI, 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 SBI, and in the event of the Architects and the SBI 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 works 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.

Please refer clause 36 of Special conditions of contract.

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.

Please refer Clause 5, 6 and 40 of Special conditions of contract.

5. **SUFFICIENCY OF SCHEDULE OF QUANTITIES:**

The contract 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.

Please refer clauses 5, 6 and 39 of Special Conditions of Contract.

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 authorised 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 document 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 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 INTERIOR 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.

Please refer clause 7 of Special conditions of contract.

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, licence fees, damages, cost and changes of all and every sort that may be legally incurred in respect thereof.

Please refer clause 23 of special conditions of contract.

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 same 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.

12. **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.

13. **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.

14. **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 authorized 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.

15. **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.

16. **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.

17. **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.

- a. 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.
- b. 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.
- c. 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.

18. **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 authorized 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 in accordance with the provisions of clause 21, hereof.

19. **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 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.

22. **PRICES FOR SUBSTITUTIONS/EXTRA ETC., ASCERTAINMENT OF:**

Should it be found after the completion of the works from measurements taken (in accordance with the previous paragraph) that any of the quantities or amounts specified for the works in the priced schedule of quantities of work thus ascertained are less or greater than the amounts and/or tender or that 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).

See Special Conditions of Contract Clause 44.

23. **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.

24. **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.

25. **DEFECTS AFTER COMPLETION:**

Any defect, shrinkage, settlement or other faults which may appear with in the “Defects Liability Period” stated in the Appendix on Page 10 i.e. 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 under clause 10.1 & 10.2 on Page 5 or any other amounts due or may become due later.

26. **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 employed. The defects liability period shall commence, only from the date of such virtual completion certificate.

27. **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 a 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.

28. **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, interalia 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.

29. **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 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 of any subcontractor or employee. The contractor shall deposit the policy and receipts for the premiums paid with the Architects, 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.

Please refer Special Conditions of Contract, clauses.

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

Such insurance shall be effected with an insurer and in terms approved by the SBI 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. 20.00 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.

31. **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.

Refer clause 9 & 36 of Special Conditions of Contract.

32. **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 neighboring 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.

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

If the contractor fails to complete the works by the date stated in clause 31 (date of completion) or within any extended time certified under clause 32 (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 in clause 16 of "Notice to contractors" (Page 6) (liquidated damages and not by way of penalty), subject to a maximum amount of 5% as stated in Appendix of General Conditions of contract (page 10) and as stated in clause 16 of "Notice to contractors" (Page 6) 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.

Please refer clauses 9 & 36 of special conditions of contract.

34. **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.

35. **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.

36. **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 24 (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 dispatch, 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 has been complied with, provided always that such line 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 plan 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.

37. **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 in completed work of the sub-contractor for which he may be liable under the terms of the contract.

38. **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 in the Appendix on Page 10 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.

Please refer clause 37 & 46 of Special conditions of agreement.

39. **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.

40. **TERMINATION OF CONTRACT BY THE EMPLOYER:**

If the contractor being an individual or a firm, commit any act of insolvency, or shall be adjudged as Insolvent or being an incorporated Company shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the Supervision of the Court and of the Official Assignee of the Liquidator in such acts of insolvency or winding up, shall be unable within seven days after notice to him 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 to give security thereof, if so required by the Architect.

Or if the contractor (whether an individual, firm or incorporated Co.) shall suffer execution to be issued.

Or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the Architects/Employer first obtained.

Or shall charge or encumber this Contract or any payments due or which may be due to the Contract thereunder.

Or if the Architect shall certify in writing to the Employer that 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 works for 14 days, after receiving from the Architect written notice to proceed, or
- c. has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- d. has failed to remove materials from the site or to pull down and replace work for 7 days after receiving from the Architect written notice that the said materials or work were condemned and rejected by the Architect under these conditions, or
- e. has neglected persistently to observe and perform all or any of the acts, matters or things by this contract to the observed and performed by the Contractors for 7 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 Architect's instructions to the contrary, sublet any part of the contract.

Then and in any of the said cases the Employer with written consent of the Architect, may notwithstanding any previous waiver, after giving 7 days notice in writing to the contractor, determine the contract, but without hereby affecting the powers of the Architect to continue in force as full as if the contract has not been so determined and as if the works subsequently executed has been executed by or on behalf of the contractor.

And further, the Employer under recommendations of the Architect, by his Agents, or servants may enter upon and take possession of the works and all plants, tools, scaffoldings, sheds, machinery, and other equipment and materials also laying upon the 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 workmen in carrying on and completion the works or by employing any other contractors or other persons to complete the works and the contractor shall not in any way interrupt or do not act, matter or thing to prevent or hinder such other contractor or other persons or person employed for completing and finishing or using the materials and plant for the works. When the works shall be completed or soon thereafter as convenient, the Architect shall give a notice in writing to the contractor to remove his surplus materials and plant, and should the contractor fail to do so, within a period of 14 days, after receipt thereof by him, the Employer shall sell the same by publication and shall give credit to the contractor for the amount realised. The Architect shall thereafter ascertain and certify in writing under his hand when (if anything) what shall be due to or payable by the Employer for the value of the said plant and materials so taken possession of by the Employer, and the expense or loss, which the Employer shall have incurred due to the contractor, and the amount which shall be so certified shall thereupon be paid by the Employer to the contractor or by the contractor to the Employer, as the case may be.

41. **TERMINATION OF CONTRACT BY CONTRACTOR:**

If payment of the amount payable by the Employer under certificate of the Architect as provided for hereinafter shall be in arrears and unpaid for 30 (thirty) days after notice in writing requiring payment of the amount, as aforesaid shall have been given by the Contractor to the Employer, or if the Employer obstructs the issue of any such certificates, or if the employer commits any Act of insolvency, or if the Employer (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 Liquidator or the Employer shall repudiate the contract, or if the Official Liquidator in any such winding up shall be unable within 15 days notice to him requiring him to do so, to the reasonable satisfaction of the contractor that he is not able to carry out and fulfill the contract and to give security for the same (including Earnest money), or if the works be stopped for any payments due, and to become due thereunder and if required under the order of the Architects or the Employer or by an injunction or other order of any court of law, then in any of the said cases, the contractor shall be at liberty to determine the contract by notice in writing to the Employer/Architect, and he shall be entitled to recover from the Employer, payment for all works

executed and for any losses he may sustain, upon any plant or materials supplied or purchased or prepared for the purpose of the contract.

In arriving at the amount of such payment, the net rates contained in the contract shall be followed, or where the same may not apply, valuation shall be made in accordance with clause 22 thereof.

42. Matters to be finally determined by the Architects and the Bank (Called excepted matters) – (refer 43(a) below), which shall be final, conclusive and binding on the following matters:
- a) Instructions
 - b) Transactions with local authorities
 - c) Proof of quality of materials
 - d) Assigning or under letting of the contract,
 - e) Certificate as to the causes of delay on the part of the contractor and justifying extension of time or otherwise,
 - f) Rectification of defects pointed out during the defects liability period.
 - g) Notice to the contractor to the effect that he is not proceeding with due diligence.
 - h) Certificate that the contractor has abandoned the contract.
 - i) Notice for determination of the contract by the Employer.

43. **ARBITRATION:**

- a. When the contractor is dissatisfied with the decision of the Architect/Employer, the contractor is required to give a notice to the Employer within 30 days of the receipt of such decision, for the appointment of the Arbitrator for the settlement of the outstanding disputes.
- b. The Assistant General Manager, State Bank Of India, Internal Audit Department, Gachibowli, HYDERABAD shall be appointed to refer those disputes for adjudication to a sole arbitration.
- c. It is also a term of the contract that if the contractor does not make any demand for Arbitrator in respect of any claims within 90 days of receiving the intimation from the Bank that the final bill is ready for payment, the claims if any received after 90 days period shall be absolutely barred from reference to the Arbitrator.
- d. All disputes or differences of any kind whatsoever, which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof this contract, or the rights touching or of this contract, effect thereof, or to the rights or liabilities of the parties arising out of or in relation thereto, whether during progress or after determination, foreclosure or breach of the contract (other than those in respect of which the decision expressed to be final and binding in cases listed out in condition 40 above), Architects shall, after written notice to either party to the contract and to the appointing Authority, who shall be appointed for this purpose by the employer refer those disputes for adjudication to a sole arbitrator, to be appointed as hereinafter provided.
- e. For the purpose of appointing the sole arbitrator referred to above, the Appointing authority will send, within thirty days of receipt by him of the written notice aforesaid, to the contractor a panel of three names of persons, who shall be presently unconnected with the organization for which the work executed.

- f. The contractor shall on receipt by him of the names as aforesaid, select any one of the persons named to be appointed as a sole arbitrator and communicate his name to be appointed as a sole arbitrator to the Appointing Authority, within thirty days of receipt of the names by him. The Appointing Authority shall thereupon without any delay appoint the said person as the sole arbitrator. If the contractor fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole arbitrator.
- g. If the Appointing Authority fails to send to the contractor the panel of three names as aforesaid within the period specified, the contractor shall send to the appointing authority a panel of three names of persons, who shall be unconnected with either party. The Appointing Authority shall on receipt by him of the names as aforesaid select any one of the persons named and appoint him as the sole arbitrator. If the Appointing Authority fails to select the person and appoint him as the sole arbitrator within 30 days of receipt by him of the panel and inform the contractor accordingly, the contractor shall be entitled to appoint one of the persons from the panel as the sole arbitrator and communicate his name to the Appointing Authority.
- h. If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reasons whatsoever, another sole arbitrator shall be appointed as aforesaid.
- i. The work under the contract, shall however, continue during the arbitration proceedings and no payment due or payable to the contractor shall be withheld on account of such proceedings.
- j. The arbitrator shall be deemed to have entered on the reference, on the date he issues notice to both the parties, fixing the date of first hearing.
- k. The arbitrator may from time to time, with the consent of the parties, enlarge the time for making and publishing the award.
- l. The Arbitrator shall give a separate award in respect of each dispute or difference referred to him. The Arbitrator shall decide each dispute in accordance with the terms of the contract and give a reasoned award. The venue of arbitration shall be such a place, as may be fixed by the Arbitrator in his sole discretion.

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

- m. The award of the Arbitrator shall be final and binding on both the parties.
- n. Subject to aforesaid, the provisions of the Arbitration and Conciliation Act, 1996, or any statutory modifications or re-enactments thereof, and the rules made thereunder, and for time being in force, shall apply to the arbitration proceedings under this clause.

8. INDEX TO SPECIAL CONDITIONS OF CONTRACT

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2. Contractor to visit site
3. Execution of work (Prices to include)
4. Schedule of Quantities
- 6a. Quantities liable to alterations
- b. Filling of tenders
7. Access for inspection
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20. Procurement of materials
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22. Testing
23. Site meetings
24. Custody and security of materials
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29. Working at night or on holidays.
30. Working on holidays
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41. Bill of payments
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52. Maintaining Registers at site
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58. Inspection by the Chief Technical Examiner
59. Special conditions of contract
60. B.I.S. Codes

9. 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.

5. **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.

6.a. **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 carryout 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.

b. **FILLING OF TENDERS: Rates of each item to be filled**

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.

Refer clause 7 of General Conditions of Contract.

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 ins 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.

Please refer clause 29 & 30 of General Conditions of 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: (Electricity boned by the contractor)**

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, INTERIOR, 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 carryout 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.

17. **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.

18. **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.

23. **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.

Please refer clause 8 of General Conditions of Contract.

24. **STATUTORY REGULATIONS:**

The whole of the work including sanitation and INTERIOR 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.

25. **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.

Refer clause 20 of General Conditions of Contract.

26. **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.

27. **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.

28. **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.

29. **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 one 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.

30. **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.

31. **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.

Please refer Appendix to General Conditions of contract.

32. **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.

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

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

- a. Detailed industrial statistics regarding the labour employed by him, etc., every month (within 5th of succeeding month),
- b. The Power of Attorney, name and signature of his authorised representative, who will be in charge for the execution of work.
- c. 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,
- d. The total quantity and quality of materials used for the works, every month within 5th of succeeding month.

Last para of clause 33:

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.

See clause 41 also.

34. **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.

35. **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 SBI 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.

Refer clause 2 & 3 of General conditions of contract.

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

The work shall be completed within the Stipulated time as per NIT, and reckoned as under:
WITHIN ONE WEEK AFTER CONFIRMATION.

- (a) The day two weeks from the date of issue of work order.

or

- (b) The day on which the contractor receives the possession of the site – whichever is later.

or

- (c) 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 of General Conditions of contract.

38. **BILLS OF PAYMENTS:**

The minimum value of work for interim payments will be Rs. 25.00 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.

39. **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.

Refer clause 9 of General Conditions of Contract.

40. **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.

Refer clause 4, 5 and 6 of General Conditions of Contract.

41. **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.

See clause 33 above also.

42. **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.

43. **RATES:**

Contractor shall quote all the rates both in figures and in words and any alterations shall have to be initialed by the contractor. Rates quoted by the contractor for the same item in different schedules shall be same, and in case 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 / SBI.

44. **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.

45. **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.

See clause 21 of General Conditions of Contract.

46. **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.

47. **PAYMENT:**

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

See clause 36 & 37 of General conditions of contract.

48. **PERMISSION:**

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

49. **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.

50. **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.

51. **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.

52. **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.

53. **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.

54. **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.

55. **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.

56. **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.

57. **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.

58. **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.

11. 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 INTERIOR 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 INTERIOR l y 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.
 - a. 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 INTERIOR 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.

12. 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 this 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.

13. SPECIAL CONDITIONS.

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, what ever 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 specifications made by the 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 Stipulated time as per NIT. If the completion of the work is delayed beyond 1 month, a penalty at the rate of ½ % per week over the contract value will be imposed subjected to a maximum of 5%.

If the work is delayed beyond 30 days after the 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 2 days after receipt of acceptance letter.
9. Payment will be made subjected to a minimum of Rs. 50,00,000/- (Rupees Fifty Lakhs Only) 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 the employer / 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 employer / 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 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 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 the employer / 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. INTERIOR contractor should inform of their number and qualification. An Approval of employer / 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 employer 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 employer, including raw materials delivered at the site to be incorporated or used in INTERIOR 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 employer 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 / 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 employer 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 client and the contractor shall permit SBI and or the client's or their authorized representative to be present during any of the tests and /or analysis.
23. INSURANCE

The contractor shall indemnify the employer up to CAR Policy (Contractor's All Risk Policy) against all claim which may be made against SBI by any member of the public or third party in respect of anything which may arise in consequence thereof and shall at his own expense arrange to effect and maintain up to one month, after the virtual completion from an office approved by the SBI a policy of insurance in the joint names and deposit such policy or policies with the employer from time to time during the currency of this contract. The contractor shall also indemnify SBI against all claims which may be made upon the employer under the workman's compensation act or any other statute in force during the currency of this contract or at common law in respect of any employee of the contractor or any sub contractor and shall at his own expenses effect and maintain upto one month after virtual completion of the contract, from an office approved by SBI a policy or policies of insurance in the joint names of the employer and the contractor as aforesaid .The contractor shall be responsible for any other thing which may be excluded from the insurance policies above referred to and also for any other damage to any property arising out of and incidental to the negligent or defective carrying out of this contract.

He shall also indemnify SBI in respect of any costs,. charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation or damage arising therefrom. SBI shall be at liberty and is hereby empowered to deduct the amount of any damages, compensation caused, charges and expenses arising or occurring from or in respect of any such claims or damages from any sum or sums due or to become due to the contractor.

24. 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 workpeople.

25. 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.

26. 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.

27. 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 .

28. MAINTENANCE AND GUARANTEE

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

The contractor without additional charge to the employer 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 the employer for his period.

29. 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 the employer against any claim or loss arising therefrom.

30. 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 and at completion. On no account shall W.C' S or the employer's receptacles to be used for this purpose.

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

31. 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 (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019** 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 (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019**. 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 **The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019**, in writing in the manner and within the time aforesaid.
- (b) **The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019** 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 (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019**. submit his claims to the conciliating authority namely the Circle Development Officer, State Bank of India, Local Head Office, Hyderabad for conciliation along with all details and copies of correspondence exchanged between him and **The Assistant General Manager (Admin), State Bank of India, Internal Audit Department, Admin Wing, Corporate Centre, State Bank Nireekshan Bhavan, Lingampally Post, Hyderabad Telangana – 500019**.
- (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 SBI 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 SBI. It will also be no objection to any such appointment that the Arbitrator so appointed is a Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as 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 SBI. 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 SBI as aforesaid should act 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 there under.

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

It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their 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 of 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 there for, 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 Employer 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 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 / Employer to believe that it is the specified material.

Then and in any of the said caused the Employer with the written consent of the Architect may, notwithstanding any previous waiver, after giving seven days 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, the Employer 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 Employer may sell the same by public auction and shall give credit to the Contractor for the amount so realized. The Architects shall thereafter shall assert and certify in writing under his hand what (if anything) shall be due or payable to or by the Employer, for the value of the said plant and materials so taken possession of by the Employer, and the expense or loss which the Employer 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 the Employer to the Contractor or by the Contractor to the Employer 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.
- 35. CONTRACTOR SHOULD WORK AT ODD HOURS, ON HOLIDAYS TO KEEP UP TIME SCHEDULE. CONTRACTOR TO CO-ORDINATE WITH OTHER CONTRACTORS FOR SMOOTH EXECUTION OF WORK.
- 36. Partitions shall be measured from finished floor level to bottom level of false ceiling.
- 38. The Contractor shall not be eligible for any material advance.

14. ABSTRACT TERMS AND CONDITIONS:

1.	Defects Liability Period.	12 calendar months.
2.	Period for final measurement and valuation.	2 weeks.
3.	Date of commencement.	Within ONE week after confirmation.
4.	Date of completion.	As Per NIT.
5.	Minimum value of Interim Certificate.	RS. 10,00,000/- (Rupees Ten Lakhs Only.)
6.	Agreed liquidated damages.	½ % of the total contract amount per week beyond the date of completion subject to maximum of 5%.
7.	Initial Security Deposit.	1% to be paid along with the Tender, balance 1% to be paid within seven days from the date of receipt of work order.
8.	Retention Money.	10% of interim certificate amount of running account bill.
9.	Total retention money in final bill including EMD & ISD Amount.	5% of the contract value.
10.	Installment after virtual completion.	Initial Security Deposit – after the contractor removes all the left over materials, machinery etc.,
11.	Period of honoring certificate.	15 days.
12.	Income Tax Deduction and S. T. under works contract act.	As per Central / State Government rules.
13.	Insurance, Custom duties and taxes.	To be provided and paid by contractor.
14.	Price Escalation.	Will not be considered.
15.	Rate of BOQ's items.	To include item complete in all respects.
16.	GST TAX:	The rate quoted by contractor must be exclusive of GST. GST will be paid as per prevailing government norms.

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14.0 TECHNICAL SPECIFICATIONS

This specification establishes and defines the requirements of various materials to be used in Civil and Structural works.

Whenever any reference to IS Codes is made, the same shall be taken as the latest revision (with all amendments issued thereto) as on the date of submission of the bid.

Apart from the IS Codes mentioned in particular in the various clauses of this specification, all other relevant codes related to specific job under consideration regarding quality, tests, testing and/ or inspection procedures shall be applicable. Reference to some of the Codes in the various clauses of this specification does not limit or restrict the scope of applicability of other referred or relevant codes.

In case of any variation / contradiction between the provision of I.S. Codes and this specification, the provision given in this specification shall be followed.

All materials shall be of standard quality and shall be procured from renowned sources / manufactures approved by the Engineer-in-Charge. It shall be the responsibility of the Contractor, to get all materials / manufactures approved by the Engineer-in-Charge for his approval. If so desired by the Engineer-in-Charge, tests shall be conducted in the presence of the Engineer-in-Charge or his authorized nominee.

Quality and acceptability of materials not covered under this specification shall be governed by the relevant I.S.Codes. In case IS code is not available for the particular-material, other codes e.g.-B.S. or DIN or API/ASTM shall be considered. The decision of Engineer-in-Charge, in this regard, shall be final and binding on the Contractor.

Whenever asked for, the Contractor shall submit representative samples of materials to the Engineer-in-Charge for his inspection and approval. Approval of any sample does not necessarily exempt the Contractor from submitting necessary test reports for the approved material as per the specification /relevant IS Codes.

The Contractor shall submit manufacturer's test reports on quality and suitability of any material procured-from them and their recommendation on storage, application, workmanship etc. for the intended use. Submission of manufacturer's test reports does not restrict the Engineer-in-Charge from asking fresh test results from an approved laboratory of the actual material supplied from an approved manufactures/source at any stage of execution of work.

All costs relating to or arising out of carrying out the tests and submission of test reports and or samples to the Engineer-in-Charge for his approval during the entire tenure of the work shall be borne by the contractor and included in the quoted rates.

Materials for approval shall be separately stored and marked, as directed by the Engineer-in-Charge and shall not be used in the works till these are approved.

All rejected materials shall be immediately removed from the site by the contractor at his own cost.

SUBHEAD - EXCAVATION EARTH WORK AND ANTI-TERMITE TREATMENT

14.1 General

The work to be done under this subhead comprises of supply of all labour, plant materials and other performance of all work necessary for excavation with necessary close timbering, strutting, shoring and bailing/pumping out water including disposing of all surplus excavated material from the site as directed by Engineer in charge / Architect .

14.2 Site Clearance: Before the start of work, the area of the plot shall be cleared of all shrubs, vegetation, grass, bush wood, shrubs etc. All the building shall be laid out to ensure that the layout plan fits at site. After completion of the work, the entire area of the plot shall be cleared from all debris, unwanted materials and level/slope of ground as required at site upto peripheral roads, The debris and unwanted material shall be disposed off away from site without extra cost .

14.3 Site Levels : After site clearance and before commencement of excavation or filling, the Contractor shall take levels at 3.0 mtr. intervals in either directions or at lesser intervals as considered necessary at site for the entire plot. A record of these levels shall be signed jointly by Contractor, Engineer in charge and Architect. These records shall be kept by the Engineer in charge.

14.4 Setting out of works: The Contractor shall set out the works and shall provide and fix all setting out apparatus required and solely be responsible for the true and perfect setting out the same and for the correctness of the position, levels, dimensions and alignment of all buildings as per the drawings. The contractor shall take in writing the approval of the Engineer in charge/ Architect for setting out and levels before starting the works. These approvals shall be recorded in the stage passing register and signed by the Architect and contractor and countersigned by the Engineer in charge.

14.5 Surface Excavation : The surface area to be occupied by the building shall be cleared of all debris, shrubs and plants, grass all round the building including ramps if any. All roots and organic material shall be cleared from the filling area inside the building.

14.6 Precious objects, Relics and Antiquities

All precious metals, precious stones, coins, treasure trove , relics, antiquities minerals ; archeological and other finds of historical importance felled trees, other usable materials of any description and the like found in or upon the site shall be the property of the Employer and deliver the same to such person or persons as the Employer may from time to time authorize or appoint to receive the same.

14.7 Classification

All materials to be excavated shall be classified by the Engineer-in-charge into one of the following classes and shall be paid for at the rates quoted for such particular class of material. No distinction shall be made between materials that are dry, moist or wet. The decision of the Engineer-in-charge regarding the classification of the material shall be final and binding on Contractor and may not be opened up or reviewed or amended in any arbitration :

14.7.1 Ordinary and Hard soils

These shall include all kinds of soils containing kankar, sand, silt, murum and/or shingle , gravel, clay, loam, peat, ash, shale and the like which can generally be excavated by spade, pick axe and shovel and which is not classified under " soft and decomposed rock" and/or " hard rock" as defined below. This classification, however, shall include embedded rock boulders not longer than 1(one) metre in any direction and not more than 200mm in either one of the other two directions.

14.7.2 Soft and Decomposed Rock.

These shall include rock, boulders, slag, chalk, slate, hard mica schist, laterite, old lime or masonry foundations and the like and which in the opinion of the Engineer-in-Charge comprise rock, but which do not need blasting and can be removed with picks, hammer, crow bars, wedges and pneumatic breaking equipment. The fact that the contractor resorts to blasting for his own purposes shall not qualify the excavated material for classification under "head rock" as defined below. This classification shall also include excavation in macadam and tarred roads and pavements, rock boulders not longer than 1(one) metre in any direction and not more than 500m in anyone of the other t/vo directions and random rubble of any type, thickness, size, shape or any masonry to be dismantled.

14.7.3 Hard Rock

This shall include all rock occurring in large continuous that cannot be removed except by blasting. No blasting shall be permitted with out the prior written consent of the Engineer-in-Charge. Harder varieties of rock with or without varies and secondary minerals, which in the opinion of the Engineer-in-Charge require blasting, shall be considered as hard rock. Boulders of rock occurring in such sizes and not classified under either (a) or (b) above shall also be classified as hard rock. This classification shall also include both reinforced and un reinforced concrete to be broken out unless separate provision in the bill of Quantities. The Engineer-in-charge may direct in certain, extreme cases that rock be excavated by heating and sudden quenching for splitting. Removal of rock using these process shall be paid for at the same rates as for blasting.

14.8 Excavation in Trenches

a) Earth work in excavation in any type of soil as existing at site for foundations of columns and walls shall be carried out as indicated on drawings.

b) The finished floor level of Stilt floor shall be fixed at site by the Engineer-in-Charge and Architect. The work shall be executed at site as per levels shown on drawings / approved by the Engineer-in-Charge / Architect.

c) Immediately after the execution of the foundation work and before covering the same the record of the following levels as actually executed at site separately for each block / other building shall be recorded in the measurement books and jointly signed and dated by the Engineer-in-Charge and Contractor.

- (i) Existing ground level.
- (ii) Level of bottom of lean concrete, under footings of columns and walls.
- (iii) Finished flooring level of academic area and ground floor residential units.

d) If Trenches or foundations are excavations beyond the specified dimensions due to bad workmanship of contractor, the extra excavation shall be filled with lean concrete 1:4:8, cement: 4 coarse sand: 8 graded stone aggregate of 40mm nominal size) by the contractor without any extra cost to Employer.

14.9 Excavation over Areas:

Excavation over areas shall be carried out to the required depths and profiles for which suitable arrangements shall be made by the Contractor. The sides of the trench shall be kept vertical upto a depth of 2 mtr. from the bottom. For a greater depth, the excavation profiles shall be widened by allowing steps of 50 cm on either side after every 2 mtr. from the bottom. Alternately the excavation can be done so as to give slopes of 1:4. Where the soil is soft, loose or slushy, the width of steps shall be suitably increased or side sloped or the soil shored up as directed by Engineer in charge. It shall be the responsibility of the

Contractor to take complete instructions in writing from Architect/Employer regarding the stepping, sloping or shoring to be done for excavation deeper than 2 mtr.

14.10 Stips :

The Contractor shall take all necessary precautions to prevent slips in excavation and shall at his own expense make good any damage or defect and remove top soil dumps and any surplus material caused by slips.

14.11 Plinth Filling & outside area filling

a) Earth obtained from excavation or approved earth brought from outside for extra payment shall be filled in layers not more than 20 cm. in depth at a time, spread, levelled, watered and well consolidated around foundations, under floors and other locations. The earth used for filling shall be free from all grass, roots debris etc.

b) Testing of filling layers : After compaction of each layer, samples shall be taken from the compacted layer and tested for dry density as per IS practice. The next layer of filling shall not be permitted to be deposited until the Engineer-in-Charge / Architect is satisfied that the previous layer has achieved required compaction. the contractor shall inform the Engineer-in-Charge / Architect in writing for inspection after filling and completion of each layer. if any particular layer fails to meet the required compaction, it shall be recompacted as directed by the Engineer-in Charge / Architect and fresh samples shall be taken to ascertain the compaction density. such recompaction shall be continued till the desired compaction(90%) is achieved.

14.12 Sand Filling: Sand shall be of approved grade and free from dust, organic and foreign matters. fine sand filling under floors shall be of specified thickness as shown on drawing. These shall be dry River fine sand watered and consolidated including dressing and levelling.

14.13 Disposal of Surplus Soil/Material: Surplus soil/earth if any, shall be disposed off with in the site of SBI as directed by the Engineer in charge/ Architect. The same shall be spread out evenly. All excavated material not so used shall only be disposed of in areas approved by the Engineer in charge/ Architect.

14.14 Anti-termite Treatment

a) This shall be provided to bottom of trenches sides, including treating the back fill, under floors and other locations as specified in IS-6313 Part II for pre construction soil treatment with any of the followings:

CHEMICAL CONCENTRATION BY WEIGHT PERCENT

(i) Chloropyrophos emulsifiable concentrates to IS 8944-1978 20

(b) The work of anti-termite treatment shall be got executed by a specialist firm which must be member of IPCA and approved by the Engineer in charge/ Architect and shall be carried out as per IS 6313 Part I & II of 1981 for pre-construction soil treatment. The firm shall render a ten year guarantee to the employer through the contractor who will be the principal guarantor. The period of ten year shall be reckoned from the date of completion of work as in completion certificate. The contractor should store the total required consumption of chemical at site within 7 days of the start up of the work. The contractor shall stock all old used drums/cans till the completion of the project.

c) Such guarantee shall be directly given by the specialist agency to the employer through the contractor in the form approved by the employer. In the event of reinfestation at any time during guarantee period, the specialist agency shall undertake such treatment as may be necessary to render the structure free from termite infestation including breaking and reinstalling any other work that may be necessary for the treatment at no extra cost.

d) Time of Application

Soil treatment should start when foundation trenches and pits are ready to take mass concrete in foundations. Laying of mass concrete should start when the chemical emulsion has been absorbed by the soil and the surface is quite dry. Treatment should not be carried out when it is raining or when the soil is wet with rain or sub-soil water. The foregoing applies also in the case of treatment to the filled earth surface within the plinth area before laying the sub-grade for the floor.

e) Termite Mound Treatment

If termite mounds are found within the plinth area, these shall be destroyed by breaking open the Earthen structure, making holes with crowbars and pouring into the mound, at several places approximately 4 litres of emulsion per cubic metre of mound.

f) Treatment of column pits, foundations, trenches and basement excavations.

The bottom surface and the sides (upto a height of 300mm above concrete foundation level) of the excavations for column pits, wall trenches and basements shall be treated with the chemical at the rate of 5 litres per square metre of surface area. after constructing the column foundation and retaining walls of the basement, the back fill in immediate contact with the

- (i) the proposed program, methods and details of plant and equipment to be used for / batching and mixing of concrete.
- (ii)

c) Reports for Inspection and Testing

During concreting operations, the Contractor shall conduct inspection and testing and all reports thereon shall be submitted in summary form to the Engineer in charge/ Architect.

d) Schedules

The Contractor shall prepare working schedule for dates and rate of placing of concrete for each item of work and submit the same to the Engineer in charge/ Architect when requested.

14.15.3 Materials

Before bringing to the site, all materials for cement concrete shall be approved by the Engineer in charge/ Architect. All approved samples shall be deposited in the office of the Engineer in charge/ Architect. The Engineer in charge/ Architect shall have the option to have any of the material tested to find whether they are in accordance with specifications at the Contractor’s expenses.

a) Cement : shall be ordinary Portland and shall be stored in a dry waterproof go down.

b) Fine Aggregate: For all concrete work, it shall be coarse sand conforming to the grading given below:- (Zone I or II only applicable to concrete). Silt content not to exceed 8% by volume. The grading of fine aggregate shall be within the limits given in the following table and shall be described as fine aggregate grading Zone I and II

IS Sieve Designation	Percentage Passing for	
	Grading Zone I	Grading Zone II
10mm	100	100
4.75mm	90-100	90-100
2.36mm	60-95	75-100
1.18mm	30-70	55-90
600 micron	15-34	35-59
300 micron	5-20	8-30

150 micron

0-10

0-10

(c) Coarse aggregate: For concrete it shall be crushed stone graded coarse aggregate. Grading shall be within the limits as given in the following table:-

(d) Coarse aggregate of all grades shall be from the crushers of approved source.

IS Sieve Designation	Percentage Passing for graded aggregate of Nominal size			
	40mm	20mm	16mm	12.5mm
80mm	100	-	-	-
63mm	-	100	-	-
40mm	95-100	100	-	-
20mm	30-70	95-100	100	100
16 mm	-	-	-	90-100
12.5mm	-	-	-	90-100
10mm	10-35	25-55	30-70	40-85
4.75mm	0-5	0-10	0-10	0-10
2.36mm	-	-	-	-

NOTE: If directed by Engineer in charge/ Architect, the aggregate (fine as well as coarse) shall be washed at Contractor's expense.

e) Broken Brick aggregate :- Broken brick aggregate shall be prepared from well burnt bricks. These shall be free from under burnt particles and adherent coating of soil or silt.

f) Water

Water used in construction for all civil & structural works shall be clean and free from injurious amount of oil, acid, alkalis, organic matters or other harmful substances which may be deleterious to concrete, masonry or steel. the ph value of water samples shall be not less than 6. potable water shall be considered satisfactory. under ground water can also be used with the prior approval of Engineer-in-Charge, if it meets all the requirements of IS:456

Tests on water samples shall be carried out in accordance with IS:3025 and they shall fulfill all the guidelines and requirements given in IS:456

The Engineer-in-Charge may require the contractor to prove, that the concrete prepared with water , proposed to be used, shall not have average 28 days compressive strength lower than 90% of the strength of concrete prepared with distilled water.

The Engineer-in-Charge may require the contractor to get the water tested from an approved laboratory before starting the construction work and in case the water contains any oil / organic matter or art excess of acid, alkalis or any injurious amount of salts etc., beyond level) of the excavations for column pits, wall trenches and basements shall be treated with the chemical at the rate of 5 litres per square metre of surface area. After constructing the column foundation and retaining walls of the basement, the back fill in immediate contact with the foundation structure shall be treated at the rate of 15 litres per square metre of the vertical surface of the sub-structure for each side. if water is used for ramming the earth fill, the

chemical treatment shall be carried out after ramming operation is completed by rodding the earth at 150mm c/c close to wall surface and spraying the chemical above dose. As earth is spilled layers the treatment shall be carried out in similar stages. The chemical emulsion shall be directed towards the concrete or masonry surfaces of the columns and walls so that the earth in contact with these surfaces is well treated with the chemicals. In the case of R.C.C framed structure with columns, plinth beams and R.C.C basements, the treatment shall start at the depth of 500mm below ground level. From this depth the back fill around the columns, beams and R.C.C basement wall shall be treated at the rate of 15 litres per square metre of vertical surface

g) Termite Proof Course or DPC In Plinth

If plinth level damp proof course is provided, the termite proof course shall be located just below the level of the filled earth. The plinth surface should be treated at 5 litres per square metres immediately after the course is laid and the concrete is green.

If there is no provision of a damp proof course, the top surface of the masonry course just below the level of plinth filling mentioned above should be soaked with the chemical emulsion at the rate of 5 litres per square metre of the surface area. This application should be carried out slowly to enable the masonry surface to absorb the emulsion properly. Both steps (a)&(b) above help in creating a barrier which is impervious to termite entry.

h) Termite Treatment at junction Of Walls and Floor

Rodding shall be carried out along the junction of walls and earth filling at 15 cm interval down to or slightly lower than the DPC or the chemical barrier described above. Emulsion shall be sprayed along the wall junction at 1 litre per linear metre so that it mixes intimately with the broken up soil and seeps to the DPC level or chemical barrier thus establishing continuity on the anti termite layer. The disturbed earth is then tamped back in place.

i) Treatment Of Top Surface Of Plinth Filling

After the plinth area earth filling is completed and before the rubble packing of sub grade is laid, the entire surface of the filled earth shall be treated with the chemical emulsion at the rate of 5 litres per square metres. Light rodding may be carried out in the soil surface to facilitate saturation of the soil with chemical emulsion. Where construction has advanced already for facility of construction, the treatment could also be done effectively, over the base concrete (lean mix) under the floor taking care that the emulsion, at the rate of 5 litres per square metre soak fully into the concrete.

The above application effectively prevents entry of termites through the floor structure.

j) Treatment of Soil along External Perimeter

Earth around the external perimeter of the building upto a depth of 30cm, shall be treated at the rate of 5 ;0 litre per running metre of the external wall. To facilitate this treatment solid MS rods should be driven into soil as close as possible to the plinth wall at intervals of 15cm, and upto a depth of 30cm , and the rods move at backwards and forwards in a direction parallel to the wall to break up the soil so that the emulsion mixes intimately with the soil.

K) spraying equipment

A pressure pump shall be used to carry out spraying operations to facilitate uniform spraying and penetration of chemical into the earth. The chemical concentration and dosage for horizontal and vertical surfaces are based on IS:6313 (Part II) code of practice for anti termite measures in building.

f) Measurement

Measurement for payment of pre-construction treatment as detailed above shall be for actual area covered by building at ground level on plan in square metre.

14.15 SUBHEAD - CONCRETE (PLAIN AND REINFORCED)

14.15.1 General

This subhead covers the requirements for furnishing of cement concrete including materials proportioning batching, mixing, testing, placing, compacting, finishing, jointing, curing and all other work as required for cast-in-place/plain cement concrete/RCC.

14.15.2 Submittals

a) Materials Reports

Prior to start of delivery of materials required for cement concrete the following shall be submitted by the Contractor to the Engineer in charge/ Architect for approval.

(i) Recommended suppliers and / or sources of all ingredients for making concrete including cement fine and coarse aggregates, Water and additives.

(ii) Quality Inspection Plan to ensure continuing quality control of ingredients by periodic sampling, testing and reporting to the Engineer in charge / Architect on the quality of materials being supplied.

b) Plant & Equipment

The Contractor shall submit the following to Engineer – in - charge / Architect well in any change in source of water, water samples shall be tested again to meet the specified requirements . Water shall be stored in tin barrels, steel tanks or water-tight reservoirs made with bricks / storm or reinforced concrete, brick / stone masonry reservoirs shall have R.C.C base slab and shall be plastered inside, with one part of cement and four part of sand and finished with neat cement punning. These reservoirs shall be of sufficient capacity to meet the water requirement, at any stage of construction. Water for curing shall be of the same quality as used for concreting and masonry works. sea water shall not be used for preparation of cement mortar, concrete as well as for curing of the plain / reinforced concrete and masonry works. Sea water shall not be used for hydro testing and -checking the leakage of liquid retaining structures also.

g) Admixture & Additives

Chemically admixtures are not to be used until permitted by the Engineer in charge/ Architect in case their use is permitted, the type amount and method of use of any admixture proposed by the Contractor shall be submitted to the Engineer in charge/ Architect for approval.

14.15.4 Mixing : All cement concrete (plain or reinforced) shall be mixed in mechanical mixers.

14.15.5 Consolidation: Concrete for all reinforced concrete works in column footings, columns, beams, slabs and the like shall be deposited and well consolidated by vibrating, using portable mechanical vibrators. The rest of the concrete such as shelving etc. shall be deposited and well consolidated by

pouring and tamping. Care shall be taken to ensure that concrete is not over vibrated so as to cause segregation.

14.15.6 Grade of Concrete :- The compressive strength of various grades of concrete shall be given as below:-

SL.NO.	GRADE DESIGNATION	COMPRESSIVE STRENGTH ON 15cm CUBES min.7 Days (N/mm ²)	SPECIFIED CHARACTERISTICS COMPRESSIVE STRENGTH AT 28 Days (N/mm ²)	MINIMUM CEMENT CONTENT (Kg. per Cub.mtr)	MAXIMUM WATER CEMENT RATIO
(i)	M-20	As Per Design	20	300	0.55
(ii)	M-25	As per Design	25	310	0.50
(iii)	M-30	As Per Design	30	320	0.45
(iv)	M-35	As Per Design	35	340	0.40

NOTE :-

i) In the designation of a Concrete mix letter M refers to the mix and the number of the specified characteristic compressive strength of 15 cm – cube at 28 days expressed in N/mm².

ii) It is specifically highlighted that in addition to the above requirements, the maximum cement content for any grade shall be limited to 500 kg/cubic metre. The limitations shall apply to all types of cements of all strengths.

iii) The minimum cement content for design mix concrete shall be maintained as per the quantity mentioned above. Even in the case where the quantity of cement required is higher than the minimum specified above to achieve desired strength based on an approved mix design, nothing extra for extra cement used shall become payable to the contractor.

14.15.6.1 The first concrete mix design / laboratory tests, with admixture will be carried out by the contractor through any one of the reputed laboratories /Test houses.

14.15.6.2 The contractor shall submit the report on design mix from any of above approved laboratories for approval for Engineer-in-Charge within 30days from the date of issue of letter of acceptance of the tender No. concreting shall be done until the design mix is approved. In case of white Portland cement and the likely use of admixtures in concrete with ordinary Portland cement, the contractor shall design and test the concrete mix by using trial mixes with white cement and / or admixtures also, for which nothing extra shall be payable.

14.15.6.3 In case of change of source or characteristic properties of the ingredients used in the concrete mix during the work, a revised laboratory mix design report conducted at laboratory established at site shall be submitted by the contractor as per the direction of the Engineer-in-charge.

14.15.6.4 All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor.

14.15.6.5 Batching and Laying :

a) Ready Mix Concrete (RMC) obtained from the automatic batching plant shall be used . Transit mixtures shall transport the concrete to site . All the precautions shall be taken during the transportation and handling of concrete has to get the approval from Engineer-in-Charge regarding source of ready mix concrete. Nothing extra on account of R.M.C & its transportation at site of work shall be paid.

b) the concrete shall be placed in position using tower crane or concrete pumps of adequate capacity to lift upto machine room level. use of mechanical hoists shall not be permitted for lifting of concrete to various levels. For pumping of concrete the design of concrete mix shall be done separately. Nothing extra for laying concrete using concrete pumps or for extra concrete mix. design shall be paid. in other words, charges of carrying out concrete mix re-design due to change of source of raw material or re-design for pumpable concrete etc. shall not be paid.

14.15.6.6 All other operations in concreting work light mixing, slump, laying, placing of concrete, compaction, curing etc. shall be as per latest IS codes.

14.15.6.7 Test specimen, Frequency of sampling, test results of samples, lot size, standard of acceptance:-

14.15.6.8 The contractor has to arrange at site the centring and shuttering for 1700 Sqm. Before start of work. Only M.S centring / shuttering and scaffolding material unless and other wise specified shall be used for all R.C.C work to give an even finish of concrete surface. However, marine - ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor as approved by the Engineer-in-Charge. Nothing extra shall be paid for the centring and shuttering circular in shape when ever the form work is having a mean radius exceeding 6m in plan.

14.15.6.9 In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of R.C.C shall be accordingly adjusted at the time of his centring, shuttering and casting for which nothing extra shall be paid to the contractor.

14.15.6.10 As per general Engineering practice, level of floors in toilet / bath , balconies, shall be kept 12 to 20 mm a required lower than the general floors shuttering should be adjusted accordingly, Nothing extra is payable on this account.

14.15.6.11 in respect of all projected slabs at all levels including cantilever, canopy, the payment for the R.C.C work shall be made under the item R.C.C slabs. The payment for shuttering shall be made under item of centring and shuttering for R.C.C slabs. Nothing extra shall be paid for the site shuttering at the edge of these projected balconies and projected varandah slabs.

14.15.6.12 Nothing extra shall be paid for providing drip course or moulding in the R.C.C projected surfaces whenever required.

14.15.6.13 Nothing extra shall be paid for laying in slanting position of centring, shuttering, reinforcement and R.C.C work for the slabs and beams of sloping roofs.

14.16 Form Work

General : The steel / Plywood form work shall be designed and constructed to the shapes, line and , dimensions shown on the drawings. All forms shall be sufficiently water tight to prevent leakage of mortar. Form shall be constructed in such a way so that it can be removed easily with out disturbing the structure. Maximum height of column for which concrete can be placed at a time shall not be more than 1.5mtr. Floor height upto 3.66111 shall be considered as one floor.

14.17 Props may be hard wood / steel. Timber used in centring and props should be suitable and strong. Pre moulded cement cubes or plastic blocks will be planned between form work and reinforced cement to achieve uniform cover of concrete.

14.18 Cleaning and Treatment of Forms: All rubbish, particularly chippings, shavings and saw dust, shall be removed from the interior of the forms (steel / ply) before the concrete is placed. The form work in contact with the concrete shall be cleaned and thoroughly wetted or treated with an approved composition to prevent adhesion between form work and concrete. Care shall be taken that such approved composition is kept out of contact with the reinforcement.

14.19 Verticality of Frame Structure : All the columns of the frame will be checked for plumb by plumb-bob as well as by the theodolite as the work proceeds to upper floors. Internal columns will be checked by taking measurements from outer row of columns for their exact position.

14.20 Stripping Time : Form shall not be struck until the concrete has attained a strength at least twice the stress to which the concrete may be subjected at the time of removal of form work. The strength referred to shall be that of concrete using the same cement and aggregates with the same proportions and cured under conditions of temperature and moisture similar to those existing on the work. Where so required form work shall be left longer in normal circumstances and where ordinary Portland cement is used, forms may generally be removed after the expiry of the following periods.

a) Walls, columns and vertical faces of all structural members	2 days
b) Removal of props under slabs :	
(i) Spanning upto 4.5 mtr.	7 days
(ii) Spanning over 4.5 mtr.	14 days
c) Removal of props under beams :	
(i) Spanning upto 6.0 mtr.	14 days
(ii) Spanning over 6.0 mtr.	21 days

d) In case of cold weather the periods may be increased at the discretion of the Engineer-in-Charge / Architect. For other cement (like pozzolona etc) stripping time recommended for ordinary portable cement may be suitably modified. The number of props left under, their size and disposition shall be such as to be able safely carry full dead load of the slab beam or arch, as the case may be together with any live load likely to occur during placing of concrete, curing or further construction.

14.21 Removal of Form work : Form work shall be removed in such a manner as would not cause any shock or vibration that would damage the concrete. Before removal of surface and props, concrete surface shall be exposed to ascertain that the concrete has sufficiently hardened.

14.22 where the shape of element is such that from work as re-entrant angles, the form work shall be removed as soon as possible after the concrete has to avoid shrinkage cracking occurring due to the restraint imposed.

14.23 Finish to Concrete Work

a) All concrete while placing against form work shall be worked with vibrators rods and trowels as required so that good quality concrete is obtained.

b) All exposed surface of R.C.C lintels, beams, columns etc. shall be plastered to match with adjoining plastered face of walls after suitable hacking the concrete surface.

c) All surface of R.C.C slabs left for cup board slab, shelves and working platform in kitchen etc. and other exposed surface of R.C.C work continues to brick work shall be plastered (12mm thick) with cement mortar 1:4 (1cement : 4 fine sand) to give an even and smooth surface.

d) The top of loft slabs and shelves shall be smooth finished while the concrete is green with a flooring coat of neat cement to give a smooth and even surface. The exposed front face shall be finished in cement plaster 1:4 (1 cement : 4 coarse sand) to bring it in line and level and finished in neat cement. such thin slabs shall be carefully cast so that they can be finished within their specified thickness. Additional thickness of plaster which makes these elements look unnecessarily heavy will be not allowed.

e) chicken wire mesh 24 gauge and 200101 mesh will be provided all along R.C.C surface adjoining brick work giving 1500101 lapping on either side using nails etc. for fixing mesh while plastering.

f) the rate shall be deemed to include for chicken wire mesh as given above and incidental labour such as chamfer splays, rounded or curved angles, grooves, rebate and with moulds / courses.

14.24 Sampling and Testing of Concretes :

Samples from fresh concrete shall be taken as per IS-456-2000 (sampling and testing of strength of concrete) and cubes shall be made, cured and tested at 7th and 28days. for testing cement concrete the contractor shall arrange for all the tools / moulds for making necessary cubes and shall bear all the charges for making the cubes, curing and testing through an approved laboratory. Further the contractor shall make available laboratory equipment at site. A temporary room of adequate size having these facilities shall be constructed by the contractor at his expense. after completion of work the contractor shall remove the equipment, dismantle the room and clear the site.

14.25 Compressive strength test at 7 days may be carried out in addition to 28 days compressive strength test for a quicker idea of the quality of concrete. in all cases the 28 days, compressive strength alone shall be the criteria for the acceptance or rejection of the concrete.

14.26 Test Specimen: Three test specimens shall be made from each sample for testing at 28 days. Additional cubes may be required for such purposes as to determine the strength of concrete at 7 days or to check the testing error.

14.27 Test strength of samples: The test strength of the sample shall be the average of the strength of three specimens. The individual variation shall not be more than ± 15 percent of the average.

LOT SIZE :-

The minimum frequency of sampling of concrete of each grade shall be in accordance with the following :-

QUANTITY OF CONCRETE IN THE WORK (CUBIC METRE PER DAY)	NUMBER OF SAMPLES
1 - 5	1
6 - 15	2
16 - 30	3
31 - 50	4
51 & above	4 Plus one additional sample for each additional 50 cubic metre of part thereof.

NOTE : At least one sample shall be taken from each shift.

14.28 Mix of cement concrete/reinforced cement concrete required to be used in various locations/ situations shall be shown on drawing. Wherever not mentioned shall be as under :-

(a) Cement concrete in floors (self finished) and concrete as under layer for terrazzo floor cast in situ shall be PCC 1:2:4 (1 cement: 2 coarse aggregate : 4 graded stone aggregate 12:5 nominal size).

(b) Cement concrete for RCC work in wall, columns footings, beams/Roof/floor slabs, landing, fins, lintels, chajjas, shelves, staircases, balconies, Loft slabs shall be of M20 Grade mix cement concrete and in Pedestals and Columns shall be of M25 Grade mix cement concrete

(c) Cement concrete in PCC filling for pressed steel frames, hold fast blocks and rain water pipes etc. shall be 1:3:6 (1 cement :3 of coarse sand: 6 stone aggregate 20 mm nominal size).

(d) The mix (1:2:4) shall conform to M 15 (nominal) and mix (1:1.5:3) shall conform to M 20 (nominal) as per IS 456-2000 for the purpose of testing and acceptance based on 28 days strength.

(f) Lean cement concrete below columns/walls footings and in sub flooring of stilt floor shall be of mix 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate 40 mm nominal size).

14.29 Bearing Plaster

This shall consist of cement plaster 1:3 (1 cement :3 fine sand) 20mm thick finished with a coat of neat cement laid on top of walls as bearing for RCC lintels, beams and slabs, when dry, a thick coat of lime wash shall be given before starting, shuttering. The shuttering shall be started after minimum one day of bearing plaster so that it is set.

14.30 Concrete filling for sunken and lowered portions of slab: This shall be cement concrete 1:5:10 (1 cement : 5 coarse sand: 10 brick ballast 40mm nominal size) in the entire sunken portions or cinder filling as per specifications shall be provided.

14.31 Damp Proof Course:

(a) This shall consist of 40mm thick PCC 1:2:4 (1 cement: 2 coarse sand :4 graded stone aggregate :12.5mm nominal size) with water proof compound conforming to IS-2645) as per manufacturer's specifications.

(b) DPC as specified above shall be provided 40mm thick at level with finish floor to the full width of walls (Ground floor only).

(c) No DPC shall be provided over dwarf walls but floors shall be carried over to the full width over the dwarf wall finished 10mm projecting over from the wall.

(d) The dried up surface of DPC shall be cleared with brushes and finally with the piece of cloth soaked in kerosene oil and then applied with hot bitumen using 1.7 Kg. per sqm. of DPC area.

(e) Vertical Damp proof course shall be provided at ground floor on common walls between floors at different levels and shall consist of 20mm thick plaster of mix 1:4 (1 cement: 4 coarse sand) with water proofing compound as per manufacturers specification and as in (d) above before filling earth/sand is carried out.

14.32 Plinth Protection

PCC 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20mm nominal size) 50mm thick of width as shown on drawing shall be provided and laid in alternate bays in slope over 75mm hard core of rammed dry brick aggregates of 40mm nominal size over well rammed and consolidated earth base with brick edging all around the buildings except in portions covered by steps, ramps and platforms. A joint of 10mm shall be left through depth of concrete all along with junction between wall and plinth protection at all turnings and across at every 2.5m. these joints shall be filled with a mixture of blown grade Bitumen 85/25 and sand. The surface shall be finished smooth without using extra cement. Brick edging shall be laid on header with cement mortar 1:4 (1 cement:4 Coarse sand) as per detail as shown on drawings.

14.33 SUB HEAD - BRICK WORK

14.33.1 MATERIAL

14.33.1.1 Sand for Masonry Mortars: Unless otherwise indicated, sand for masonry mortars shall consist of natural river sand (generally termed as coarse sand) conforming to IS 2116-1965 specifications for sand for masonry mortars. Sand shall be hard, durable, clean and free from adherent coatings and impurities such as iron particles, alkalis, salts, coal, mica, shale or similar laminated or other materials exceeding the specified limit. Grading of sand shall be as under :

	Percentage Passing by weight	
	Un reinforced masonry	Reinforced masonry
4.75mm	100	100
2.36mm	90-100	90-100
1.18mm	70-100	70-100
600 micron	40-100	40-100
300 micron	5-70	5-70
150 micron	0-75	0-10

14.33.1.2 The maximum quantities of clay, fine silt and fine dust in sand shall not be more than 8 percent by volume, Organic impurities shall be below that obtained by comparison the standard solution on specified in 6-2-2 of IS 2386 (Part II 1983). The coarse/fine sand shall be from river Krishna or from any other source conforming to the above standards.

14.33.1.3 Common Burnt clay building brick : Common burnt clay building bricks (herein-after termed as bricks shall conform to the requirements laid down in IS-1077-1976 for common burnt clay building bricks. Bricks shall be class designation 75, sub Class 'A' as per parameters given in the IS regarding edges, dimensions etc. The overall dimensions shall however be as per local practice of moulds. Water absorption after immersion in cold water for 24 hours shall not exceed 20% and grading for efflorescence shall be less than moderate. Bricks shall be free from cracks, flaws and nodules of free lime. Dimension shall be all within tolerance. Under/over burnt bricks and warped bricks shall be totally rejected.

14.33.1.4 Test check on random samples from each lot of bricks brought at site shall be carried out for compressive strength and water absorption test. Results of these tests duly signed and dated by Contractor; Architect and Engineer in charge shall be recorded in a separate register, which shall be kept with the Engineer in charge.

WORKMANSHIP - MASONRY MORTARS

14.33.2 Preparation of Cement Mortars: Mortar shall be of mix as indicated. The mixing specified is by volume. Mixing shall be done in a mechanical mixer. The mortar shall be mixed at least three times after

adding of water. The cement mortar shall be freshly mixed for immediate use. Any mortar which has commenced to set shall be discarded and removed from the site.

14.33.3 Bond : All brick works shall be built in English bond, unless otherwise indicated. Half brick walls shall be built in stretcher bond. Header bond shall be used for walls curve on plan for better alignment, header bond shall also be used in foundation, stretchers may be used when the thickness of wall renders use of header impracticable. Where the thickness of footings is uniform or a number of courses, the top course of the footings shall be of headers. Brick courses at DPC level and at all slab levels below the bearings of slab shall be as bricks on edges.

14.33.4 Half or cut brick shall not be used except where it is necessary to complete the bond.

14.33.5 Overlap in stretcher bond is usually half brick and is obtained by commencing each alternate course with a half brick. The overlap in header bond which is equally half the width of the brick is obtained by introducing a three quarter brick in each alternate course at quoins. In general, the cross joints in any course of brick work shall not be nearer than a quarter of brick length from those in the course below or above it.

14.33.6 Curing: The bricks shall be adequately wet before use and brickwork shall be constantly kept wet for atleast seven days.

14.33.7 Half Brick Walls : The bricks shall be laid in stretcher bond in cement and sand mortar 1:4 (1 cement : 4 coarse sand) or as indicated. The reinforcement shall be 2 Nos. MS round bars or as indicated and as described in SUBHEAD VII steel and Ironwork. The diameter of bars shall be 6mm. The first layer of reinforcement shall be used at second course and then at every fourth course of brick work. The bars shall be properly anchored (min. 150mm) at their ends where the portions and or where these walls join with other walls columns. The inland steel reinforcement shall be completely embedded in mortar. Overlap in reinforcement if any, shall not be less than 30 cm. The cover i.e. the mortar interposed between the reinforcement bars and brick shall not be less than 6mm. The mortar covering in the direction of joints shall be not less than 15mm.

14.33.8 Brick work in foundation upto plinth: Brickwork in foundation shall be with brick of class designation 75 upto plinth level in cement mortar 1:6 (1 cement: 6 coarse sand).

14.33.9 Brick work in Super structure : Brickwork in superstructure including parapets shall be bricks of class designation 75 in cement mortar 1:6 (1 cement: 6 coarse sand).

14.33.10 Brick work in Steps of staircase : Brickwork in steps of staircase shall be in bricks of class designation 75 in cement mortar 1:6 (1 cement: 6 coarse sand).

14.33.11 Parapets and Railings : Parapets and railing shall be provided to balconies, Terraces, roof tops and stair landing etc. of upper floors as per details shown on drawings.

14.33.11 70mm Thick Brick Work

70mm thick brick work shall be provided with bricks of class designation 75 in cement mortar 1:3 (1 cement : 3 coarse sand) wherever shown in the drawings.

14.34 SUB HEAD - JOINERY WORKS

14.34.1 General

The type of shutters for doors, windows, ventilators etc. viz. paneled glazed wire gauzed and flush shall be as indicated and detailed in the drawing.

14.34.2 TIMBER:

a) Quality : Unless otherwise specified timber used in wood work shall be of approved quality from the species of wood listed in IS 399-1963.

b) Timber shall be well seasoned, proper dressed, of uniform colored and durability of reasonably straight grains and shall be free from knots, cracks, shakes, splits, cross grains ,decay and sapwood etc.

c) Teak Wood : Moisture content of timber used in wood work shall be as close as possible to the lower values laid down in the table below.

S. No.	Type of Wood work	Recommended range of moisture content (%)
1	Frames of doors and windows etc.	16 to 18 %
2	Shutters of doors and windows etc.	15 to 16 %
3	Frame work for ceiling, cladding etc.	16 to 18 %

14.34.3 Flush Door shutters: Door shutters shall be 35 mm thick craft master wooden moulded door having hard wood timber frame of 29 mm th. Core and door facing plates (wooden fiber plates) pasted on both sides with overall thickness of doors to be 35 mm. The core shall be solid core using machine filled rigid expanded polyurethane foam of density 45 kg / cubic meter. Minimum width of frame shall be 65 mm th with additional wooden blocks for fixing of locks etc. door facing plates shall be 3.2 mm th. Phenolic bonded passing the test as required vide IS 2380 and formaldehyde test as per IS and boil test as per is 4020. Water absorption should be less than 16% after 2 hours and less than 36% after 24 hours. Moisture content should not be more than 8%.

14.34.4 Testing of Flush Door / Wooden Moulded Door Shutters: On receipt of the shutters at site the Engineer in charge SBI or The Architect shall be entitled to get the samples of door shutters tested in any approved laboratory. From each lot of approximately 100 shutters, one shutter shall be selected at random by the Engineer in charge/ Architect. The cost of replacement of the door shutters selected as samples, their transportation to the laboratory and cost of testing by the laboratory shall be borne by the Contractor.

14.34.5 Glazed & Gauzed Door Shutters : Shutters shall be 35/40 mm thick. These shall consist of second class Teak wood styles, top, bottom and lock rails as per details shown on drawings. Timber to be used for these shutters shall be of good quality, seasoned of material growth and conforming to IS 4021-1963. Seasoning and ASCU treatment shall be done as per IS-402-1962. Styles and rails of shutters shall be in one piece only. Styles and rails shall be jointed to each other by tenon or mortice at right angles. Mountings and glazing bars shall have joints and shall be strub tenoned to the maximum depth which the size of member would permit.

14.34.6 Wire gauge shutters : Provisioning and fixing of 35mm thick wire gauge shutters to all openable windows is in the scope of work of this contract. Wire cloth shall be securely housed in rebates by giving a right angled bend and fixing by means of suitable staples at intervals of 75mm. Over this wooden bead of specified size shall be fixed with nails, or screws, where indicated to cover the rebate fully. The space between the beading and the rebate shall be filled with putty to give it a neat finish. Exposed edges of the beads shall be rounded.

14.34.7 Door and windows shutters shall be provided as per details shown on the drawings.

14.34.8 The bottom of door shutters shall be 5mm above the finished floor level.

14.34.9 The glass panes shall be free from flaws, specks or bubbles and shall have square corners and straight edges. The glass panes shall be so cut that it fits slightly loose in the frames. The glass pane shall be fixed to the shutter with first glass hardwood beading of size as indicated properly screwed to the shutter with steel nails and necessary adhesive as per details as shown on drawings.

14.34.10 Glazing to windows/doors shutters shall be as follows of quality as approved by Engineer in charge and Architect.

- (a) Fan light of Doors shutters : 5.5 mm thick plain sheet glass.
- (b) Door Shutters partly glaze : 5.5mm thick plain sheet glass with itching.
- (c) Windows (openable & fixed) : 5.5mm thick tinted glass.
- (d) Ventilators : 5.5mm thick pin head glass.

14.34.11 Polishing and finishing: Polishing to all wood work is to be done with 3 to 4 coats of melamine polish, including the necessary pigments to get the proper colour and shade as by the Architect / Engineer in charge. Before polishing the base of wooden surface should be properly prepared by applying base primer and filling .The surface should be smoothened by applying sand paper on base. The polish work should be up to the satisfaction of Engineer in charge /Architect.

14.35 SUBHEAD – ALUMINIUM DOORS, WINDOWS & VENTILATORS.

14.35.1. The Aluminium extruded sections shall conform to Designation 63400 given in IS 737-1986 and shall be of manufacturers such as JINDAL or Hindalco or INDAL or equivalent manufacturers to be approved by the Engineer in charge/ Architect.

14.35.2. The Aluminium Doors, Windows, Ventilators and Glazing sections shall be anodized (anodic coating shall conform to IS 1868) As per colour approved by the Engineer in charge/ Architect .

14.35.3. The fabrication shall be carried out having mechanical joints, accurately machined and fitted to form hairline joints, with the vertical and horizontal sections at the corners to meet in 45 degrees mitred. The jointing shall be either with accessories such as cleats and cleating screws or by crimping with Hydraulics Press on to heavy duty extruded Aluminium cleats. The relevant arrangement shall be got approved by the Architects/ Engineer in charge. The glazing shall be fabricated and anchored to withstand wind pressures as per the Indian Standard.

14.35.4. Before proceeding with any manufacture, Shop Drawings for each typical elevation shall be submitted for the approval of the Architect and no work shall be performed until the approval of the shop Drawings is obtained.

14.35.5. All Glazing shall be air tight and water tight, using appropriate extruded EPDM gaskets/ as manufactured by MODI or equivalent; and sealant which shall be of high quality and performance requirements.

14.35.6. Each Glazing shall be tailor-made as per openings at Site. No cutting and making good of exposed grit wash plaster surfaces shall be permitted.

14.35.7. All the Aluminium sections shall be wrapped with self-adhesive non-staining thick layer of PVC tapes as approved by the Architects, and shall be duly packed for avoiding scratches or blemishes to the powder coated surface of the sections till the installation is completed.

14.35.8. The frames shall be fixed to concrete/masonry/brick work with dash fasteners and the method of fixing shall be got approved by the Engineer in charge before installation. The drilling of holes for inserting the dash fasteners shall be carried out with drilling machines and the frame shall be fixed in plump, line and level at jambs, sills and heads.

14.35.9. The perimeter gap between the outer frame and the masonry shall be sealed with polysulphide sealant as per the make approved by the Engineer in charge.

14.35.10. Glazing: The glass panes shall be free from flaws, specks or bubbles and shall have square corner and straight edges. The glass panes shall be so cut that it fits slightly loose in the frames. The glass pane shall be fixed to the shutter with Aluminium beading and E.P.D.M. gasket properly snapped on as per the drawing. The glass panes shall be of approved make.

14.36 SUB HEAD - BUILDERS HARDWARE

14.36.1. Mongery shall be provided to all doors, windows and ventilator shutters with necessary matching screws of suitable size.

14.36.2. Fittings and fixtures to all doors shall be of Brass material from JYOTHI manufacturing company and for window and ventilators etc. fittings and fixtures shall be Aluminium anodized Matt finish ISI marked of approved make. The contractor shall obtain the approved of the name of the manufacturer and brand of fittings from Engineer in charge/ Architect before placing the supply order. If demanded an approved copy of Bureau of Indian Standard letter under which the manufacturer has been issued the license and authorized to make the items of builder hardware with ISI marking should be attached and one sample of each fittings of the particular brand duly ISI marked shall be given by Contractor.

14.36.3. Handles for window shutters shall be 75mm long and door shutters shall be 125mm D-Type Aluminium anodized.

14.36.4. Magic eye for entrance door shall be wide angle best quality. This shall be fixed at 1400 mm height from finished door level.

14.36.5. One sample piece of each fitting shall be produced for approval of Engineer in charge/ Architect. The bulk supply order shall be placed by the Contractor only after approval is accorded by Engineer in charge/ Architect.

14.37 Schedule of Builder's Hardware

14.37.1 Schedule of Hardwares/fittings to door, window and ventilator shutters shall be as per drawings.

14.37.2 Mortice Latch (Vertical Type)

Mortice latch (Vertical type) shall conform to IS 5930-1970, Specification for mortice latch (Vertical Type). These latches shall be capable of being operated inside and outside and shall be provided with a pair of Aluminium anodized lever handle fitted on the handle plate in order to close the door. The latches shall be of brass alloy. Face plate shall be provided in front of the ease plate, size of latch shall be 65mm.

Mortice Locks

These shall conform to IS 2209-1976. Specification for Mortice locks (Vertical Type). These shall have body, body covers, cast plate, faceplate, skirting plate lever, follower of cast brass and locking bolt and latch bolt extruded brass. Lever spring and latch spring shall be of phosphor bronze. The locks shall be supplied with 2 Nos. stainless steel keys. Locks shall be 6 lever. The lock shall be easily working with lever and shall be capable of being opened with from both inside and outside and shall be provided with a pair of Aluminium anodized lever handles on the handle plate in order to close the door from both side.

14.37.3 Hydraulic Door Closer (Floor Type)

The Contractor shall provide double acting Hydraulic Door Closer (floor type) model No. F-32, Cat No. 1204 with SS Plate. Capacity to carry door weight upto 380 Kg. of EVERITE brand. OR Cat No. OFS 9621 of OPEL brand. These shall be approved brand and manufacturer as above (Conforming to IS 6315) for Aluminium door including cost of cutting floor as required, embedding in floors and cover plate etc.

NOTE:-

1. If any of the fittings are not manufactured as ISI marked there shall be of the same brand of other the ISI marked fittings approved by Engineer in charge.

14.38 SUB HEAD - STEEL & IRON WORK

14.38.1 Quality of steel shall conform to the following specifications:-

- | | | |
|-----|------------------------|---------------------|
| (a) | Mild steel (Misc.) | IS 432-1966 Part I |
| (b) | MS reinforcement bars | IS 432 Part II 1962 |
| (c) | Structural steel works | IS 226-1962 |
| (d) | Steel Deformed Bars | IS-1786/1979 |

14.38.2 Reinforcement:

- (a) Reinforcement bars 6mm dia shall be MS bars.
- (b) All reinforcement bars 8mm and above shall be deformed twisted steel bars.
- (c) Laps and crossing shall be tied with mild steel binding wire of size not less than 0.9 mm dia.
- (d) The Contractor shall be responsible for accurate fixing and placing of reinforcement shown in drawing and shall not place the concrete until the reinforcement has been checked, passed and recorded by the Architect and Engineer in charge.
- (e) Reinforcement shall be bent and fixed as per IS-2502-1963.
- (f) Laps in reinforcement for columns, beams and slabs etc. will be as stipulated in IS. Or as shown on drawings.

14.38.3 Holdfasts: Holdfasts shall be made out of MS flats of size as specified with split fish tail ends coated with anti rust paint/tar. Holdfast shall be welded to door/windows frame as specified.

14.38.4 Steel Door frame and shutters: Size of door and locations shown on drawing and shall be comprising of frame and shutter fabricated and welded out of MS angle, plate & sheet and 10mm square tie bar. The door shall be painted with two or more coats of synthetic enamel paint of approved quality & shade over one coat of steel primer. Each MS gate shall have hold fast - 6 Nos. Butt hinges 125mm - 3 Nos. MS handles 100mm - 2 Nos. and MS sliding bolts 300 x 16mm - 2 Nos. (1 inside and 1 outside). Hold fasts shall be embedded in PCC block (1:3:6) of size 23 x 23 x 15cm.

14.38.5 Grills : MS grills manufactured out of flat iron, MS square tubes and round bars and of pattern as shown on drawing shall be provided to all windows openable/fixed, glazed portion of doors and fanlight of doors. All grills shall be fabricated and welded to frames.

14.38.6 Railing to staircases, landings, passages, balconies & parapets:-

a) Railing to staircase, landing etc. shall be fabricated with 25mm square M.S. Hollow pipes, 12x12mm square MS bars with vertical supports, MS Perforated sheet & top handrail made of 65x100mm size in first class T.W. etc., as shown in drawing .

b) Verandah/Balcony Railing shall be fabricated with MS flat and 18mm square MS bars with vertical supports & top handrail made of 40mm dia M.S. pipe (medium grade) welded at joints fixed into floor/steps as shown in drawing.

c) The fixing details and dimensions for 7 (a), 7(b) & 7 (c) above shall be as shown in drawings. All welded joints shall be grounded properly before painting. The finished railing shall be true to plumb, line and levels as called for. The mild steel blusters and other exposed mild steel members shall be painted with approved shade and brand synthetic enamel paint as specified in clause No. 11 of SUBHEAD XI.

14.38.7 Exhaust Fan opening : In kitchen provision for fixing of exhaust fan shall be made by fixing 19mm thick BWP grade commercial board with a circular hole 300 mm dia in window as shown on drawings. This opening shall be covered by bird guard fabricated out of galvanized iron sheet 18 gauge as shown in drawing.

SUBHEAD - ROOF COVERING, WATER PROOFING & RAIN WATER PIPES.

14.39.1 Exposed roof at terrace floor level : Roof slabs and Sunken slabs shall be cleaned thoroughly and following treatment/covering shall be provided

SPECIFICATION :-

Treatment to wall and slab junction

1. Surface shall be prepared by wire brushing and cleaning to remove loose particles and finally cleaned with copious amount of water and allowed to dry.

2. Bonding coat using a slurry of Nitobond SBR a polymer mixed with cement and water in the ratio of 1: ½ :1, shall be applied.

3. Coving shall be made along the joint using cement mortar 1:3 admixed with Nitobond SBR at 3 Lts, per bag of cement, shall be prepared and applied onto the primed surface and finished smooth. This shall be applied when the bonding coat reaches touch hard state.

Waterproof coating

1. Surface shall be mechanically scrubbed, to remove loose particles or any laitance, followed by acid etching and water wash and allowed to dry.

2. The prepared surface shall be coated with ready to use, 2 component polymer modified, cement based, waterproofing slurry Brushbond @ 2mm thick in two coats as per manufacturer's specification and instruction.

3. On top of the coating a 15mm thick cement sand mortar (1:3) admixed with cement waterproofing compound like Conplast X421IC (Fosroc) conforming to IS 2645 at the rate specified by the manufacturer shall be applied and the plastered shall be finished smooth with a steel trowel using cement slurry. The surface shall be cured for 3 to 4 days.

The work is to be carried by approved specialist waterproofing agencies like FOSROC or equivalent as approved by Bank / Architects . Work shall be done carefully after all the sanitary and waste pipes & specials are properly installed and connected, without causing any damage to the sanitary installations) (below 100mm thk. CC (1:2:4) paid separately) up to floor two level.

14.39.2 TERRACE WATERPROOFING TREATMENT

Packing and grouting pipe crossing in slabs and beams of toilets sunken slab and beams. Preparing, shuttering, mixing, grouting and curing the pockets holes left for pipe line crossing in the slabs and beams by using Nitobond AR and cement slurry in ratio 1:1:3 (one of NITOBOND AR, one of water and one of cement by volume) applied on the prepared clean surface and immediately mixing and applying CONBEXTRA GPI using 3 to 6mm hard blue metals at ratio (1: ½) by weight and restrained against upward expansion, etc., complete. Necessary care should be taken to prepare the mechanical key on the PVC pipelines on surface of contact to the grouts.

Surface Preparation

The surface to receive the waterproofing shall be cleaned of all dust dirt, loose material, debris, mortar droppings, laitance, oil, grease or any other form of foreign matter and shall be saturated with water.

Providing Chamfers

Chamfers shall be provided at the junction of slab and Parapet wall with 100 x 100mm fillet using cement sand mortar 1:4 mixed water proofing admixture Conplast X421IC @ 150 ml., per bag of cement and cement modifier Nitobond SBR @ 2 Lit. per bag of cement.

Pressure Grouting

1. Water shall be stagnated for 3 days and cold joint and weak spots shall be identified.
2. 10mm dia holes shall be drilled along the cold joint identified weak spots and construction joints of the roof slab and beams hammer drill at spacing not exceeding 500mm c/c.
3. The depth of nozzles shall be adequate to push the grout at all depth. PVC nozzles shall be fixed in the holes drilled using rapid setting mortar Renderoc Plug.
4. Cement slurry mixed with grout admixture Cebex 100 @ 225 gms per of cement shall be prepared to the required consistency and injected through the prefixed nozzles under pressure using grout

pump to fill all possible pores and gaps left within the concrete mass. When the flow of the grout stops the grout mains shall be disconnected.

5. The PVC nozzles shall be sealed off with quick setting water proofing agent Renderoc Plug after the injection operation is over.

6. The grout holes shall then be finished after cutting the projected nozzles.

Water proof Coating

The prepared surface shall be coated with ready to use, 2 component polymer modified, cement based waterproofing coating Brushbond @ 1mm thick in two coats and allow to dry completely.

Protective Screed

On top of the coating a 20mm thick plastering using cement sand mortar (1:4) admixed with cement waterproofing compound Conplast X421IC @ 125 ml per bag of cement and polypropylene fibers @ 125 gms per bag of cement, shall be provided and finished smooth.

The work is to be carried by approved specialist waterproofing agencies like FOSROC or equivalent as approved by Bank / Architects . Work shall be done carefully .

14.39.3 Coving/Gola: Providing coving 75 x 75 in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 stone aggregate 10mm and down gauge) at the junction of RCC slab and wall and junction of tiles and parapet/wall including finishing exposed surfaces with cement mortar 1:4 (1 cement : 4 fine sand) as per drawing. Gola shall be done before plastering of parapet. The rates included in item of roof treatment.

14.39.4 Khurras: Making khurras 600 x 600 with average minimum thickness of 50mm cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 stone aggregate 10mm nominal size) finished with 6mm cement plaster 1:4 (1 cement: 4 coarse sand) and coat of neat cement including rounding of edges and making and finishing the outlets complete as per standard design/ COBA treatment. The rate included in the item of roof treatment.

14.39.5 Chajjas :- Slab shall be cleaned thoroughly and following treatment/covering shall be provided:

Finishing with 12mm plaster in cement mortar 1:4 (1 cement: 4 coarse sand) mixed with water proofing compounds as per manufacturer's specifications OR @ 5% of amount by weight. This shall be applied after thoroughly cleaning surface.

NOTE: All CI/GI pipes and fittings passing through the wall of the sunken portion shall be laid/ fixed before the treatment as specified above is carried out.

14.39.6 Unplasticized Rain Water Pipes:

a)The rain water pipes and fittings shall be provided with unplasticized PVC pipes conforming to IS-4985-81 and ISI marked. The u PVC pipes shall be of outside diameter 110 mm, 90mm and 165mm as shown on drawings and of working pressure 6 Kg./sq. cm. Internal & external surfaces of the pipes shall be smooth and clean, reasonably free from grooving and other defect. The U PVC pipes shall be jointed with PVC solution for concealed pipes and for exposed pipes with PVC collars by using lubricating solvent solution. Fittings shall be injection moulded or fabricated type conforming to IS-8008-1976 (Part I and IV) and/or IS 8360-1970 (Part-I to III)and/or as per manufacturers recommendations. The pipe shall start from 150mm above plinth protection at ground level with bend and a tee junction shall be provided at all terrace

levels to collect water from khurras and vertical pipe shall be extended upto top of parapet. At top PVC cowl shall also be fitted.

b) Cast iron chamber and grating at the top and outlet of every rain water pipe shall be provided and shall fit in snugly on the socket end of the pipe. The perforations in the grating shall be at least 60% of the total area of gratings.

c) Where the rain water pipes are to be provided concealed within masonry the pipes shall be embedded in the walls with PCC 1:3:6 (1 cement: 3 coarse sand :6 stone aggregate 20mm down gauge) encasing all round. External surface of the pipes shall be painted with PVC adhesive and than coarse sand shall be sprinkled before embedding the pipe in the concrete for proper griping with concrete.

d) Rain water pipes running down along the walls/columns shall be firmly fixed to the wall/ column at all joints and one meter spacing on pipe with PVC clips as per manufacturer instructions.

e) Provide angled end pieces CI shoes at bottom and splash stones of size 450 x 300 x 20mm embedded in plinth protection. Stones shall be quartzite chisels dressed.

SUBHEAD - FLOOR FINISHING, SKIRTING & DADO

14.40.1 General

a) This SUBHEAD shall cover all flooring and wall tilling work as shown in the drawing. No work under this SUBHEAD shall be started until specifically allowed by the Engineer in charge/ Architect and until all other major works such as plastering, embedding of conduits and pipes, channels, windows fixing etc. have been completed. Samples of adequate size representing the quality, size, texture after polishing of the tiles to be used in the flooring work fully shall be prepared for all work and got approved from the Engineer in charge/ Architect before proceeding. The approved samples shall be retained up to the end.

b) Floor shall be laid to level and or to slope as shown on drawings and as required and directed by Engineer in charge/ Architect. Floor shall be carried through all the doors and other openings and over dwarf walls. Exposed edge of floors shall be finished in the same manner as for top surfaces. Skirting shall match with the floor finish.

14.40.2 Sub Flooring

a) For Ground Floor:

Sub floors (base concrete under floor finish) 75mm thick lean concrete in 1:4:8 (1 cement:4 coarse sand & 8 aggregate 40mm nominal size) for all locations

b) For Upper Floors

(i) Sunken/lower portion of slabs: Sub base shall be in lean concrete in 1:5:10 (1 cement :5 coarse sand and 10 brick ballast 40mm nominal size).

(ii) Other floors: Where ever required/directed lean concrete 1:5:10 (1 cement :5 coarse sand and 10 brick aggregate 40mm nominal size) of required thickness laid over RCC slab.

(iii) Floors under cupboards/book shelves/kitchen counters etc. in 1:5:10 lean concrete (1 cement :5 coarse sand and 10 brick aggregate 40mm nominal size).

14.40.3 Plain cement concrete flooring:

Cement concrete 1:2:4 (1 cement:2 coarse sand : 4 graded stone aggregate 12.5mm nominal size) flooring of specified thickness. The thickness of flooring finished shall be 40mm/50mm as specified in schedule of quantities with grooves of 10mm wide shall be left through depth of the flooring (finishes) to form bays as specified in para 5 (b) hereinafter OR. The top surface shall be finished with floating coat of neat cement using steel float while the concrete is green. With 6 mm PVC strips. As specified in Schedule of quantities.

14.40.4 Skirting To match PCC floors 18mm thick plaster in cement mortar of mix 1:3 (1 cement: 3 coarse sand) finished with a floating of neat cement shall be applied to skirting. The skirting shall be 100 high and it shall be projecting uniformly from the plastered surfaces of walls and columns and separated with horizontal groove of 10 mm x 10mm.

14.40.5 Glazed tiles

a) The tiles shall be of first quality and shall generally conform to IS : 777. These shall be flat, and true to shape and free from cracks, crazing, spots, chipped edges and corners. The glazing shall be of uniform shade and shall be provided in Dado of kitchen and toilets. The tiles shall be set over screed/ plaster 12mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) to all surface, set and jointed with laticrete Adhesive. The joints shall be neat and fine. Tiles face shall be kept flush with the skirting below.

b) Size of glazed tiles both for toilets, Baths, WC and kitchen shall be as shown on drawings.

c) The color of tiles shall be white/colored and the sample shall be got approved before fixing.

d) Height of glazed tiles dado above skirting in toilets and in kitchen, above kitchen platform shall be as shown on the drawings.

14.40.6 The glazed tiles shall be first quality vitreous china and of the following makes:-

- (a) Kajaria.
- (b) Johnson
- (c) NITCO

14.40.7 Finish of working plat forms in kitchens

Finish of the working platform in kitchen shall be with 20mm thick Granite stone slabs diamond cut and mirror polished laid over RCC slab with 20mm cement mortar 1:4 (1 cement: 4 coarse sand). Granite shall be jointed with white cement slurry including grinding smooth and polishing complete

14.40.8 (a) Marble flooring: 20-25 mm thick marble (Makrana Adanga Doongri marble) stone slabs laid over sub floor with 20mm thick base cement mortar 1:4 (1 cement: 4 coarse sand) Marble shall be jointed with white cement slurry including grinding smooth & mirror polishing complete.

(b) Marble Skirting: The marble stone slabs for skirting shall be as specified in clause 12 (a) above and of thickness 15 - 20mm. The stone shall be laid over 12mm thick cement mortar plaster 1:3 (1 cement : 3 coarse sand), jointed with white cement slurry including grinding smooth and mirror polishing.

14.40.9 (a) NON- SKID CERAMIC TILES:

Where indicated in Schedule of finishes shall be laid with cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with white cement paste pigmented to the tile shade.

(b) NON-SKID CERAMIC TILES SKIRTING: Where shown/indicated in the drawing/ schedule of finishes shall be provided 100mm height over 10mm thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with white cement paste pigmented to the tile shade.

14.40.10 VITRIFIED TILE

1. Where shown/indicated in the drawing / schedule of finishes, premium range vitrified polished ceramic tiles of 605 x 605 x 10mm size of NITCO or other approved equivalent make (as per drawings) set over a base coat of CM (1:6) 12mm thick shall be provided and jointed with white cement paste pigmented to the tile shade.

2. The tile to be used should be of first quality, equal size and of same shade as approved by Engineer in charge / Architect.

3. The vitrified tiles shall be made from granite granules and bonding agent in the hydraulic press. The size of granite granules shall be uniform and there shall be no appreciable colour deviation. The shade and size of tiles shall be as shown in architectural drawings or as directed by Engineer in charge. Necessary cutting of tiles where required shall be done.

4. Measurement and rates shall be same as for marble flooring/ skirting

14.40.11 VITRIFIED PAVED TILE FLOORING FOR PARKING :

1. Where shown / indicated in the drawing / schedule of finishes, vitrified paved tiles of NITCO make or equivalent as approved by engineer-in-charge, 16mm thick of size 300mm x 300mm set over a base coat of CM(1:6) prop. 12mm thick shall be provided and jointed with white cement paste pigmented to the tile shade.

2. The tile to be used should be of first quality, equal size and of same shade as approved by engineer in charge / Architect.

CLAY PAVERS:

MATERIAL SPECIFICATIONS OF INTERLOCKING CLAY PAVERS

Shape: Tri-Hexagon shaped hard burnt Paver .

Three Hexagon shaped pieces combined to make a single unit with each side measuring 57mm x 57 mm. Thickness should be 50mm to allow for any kind of load bearing capacity. All sides of the Paver having bevelled edges 8-10 mm for greater edge strength.

Colour: Natural Brick red/ Terracotta red with no pigments used.

Material : Clay & clay components.

Compressive Strength of the paving units shall be 400 Kgs./cm²

Water Absorption of the paving units should not exceed 15%.

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Efflorescence: NIL

Anti skid/ Anti slip: The pavers should comply to the property of being anti skid/ anti slip. The pavers should be resistant to acid and should not disintegrate when acid poured on them.

Pavers to be coated with a chemical/acrylic coating on the face, further reducing the water absorption and making them resistant to stains.

The pavers when struck with a metallic object or against each other should give a metallic ring.

Laying of Interlocking Clay Pavers

METHOD OF LAYING IN SAND

(i) Preparation of Ground:

Ensure you have root and rubble free compacted sub-base of at least 50mm thick. The sub-base should be roughly leveled and damped down before tamping down firmly with hand or mechanical compactor. Hand compaction is usually enough for most domestic applications. Mechanical compaction should be used when paving vehicle traffic areas.

(ii) Spreading Sand:

Spread the sand to get the level 1. For level 2. The sand should be screened and spread with guide rods to achieve a uniform thickness of 30mm.

(iii) Laying the Pavers:

Commence at a straight fixed edge if possible. Start laying pavers in the desired direction starting from the edge restraint. Start laying the pavers in the desired pattern placing each paver on the sand and tapping lightly with a rubber mallet or hand tamper.

(iv) Brushing in Sand:

After the pavers have been laid use a compactor to push pavers into soft sand. Spread dry screened sand over the laid pavers so that the sand fills the grooves. For heavy traffic repeat this process once again.

14.41 SUBHEAD - WALL FINISHES

14.41.1 General

a)Scope

This SUBHEAD shall cover internal and external plastering/rendering works as shown in the drawings.

b)Mortar : The mortar of specified mix shall be used.

c)Scaffolding

Stage scaffolding shall be provided for plastering work as per standard practice and as directed by Engineer in charge/ Architect. This shall be independent of the walls.

d)Preparation of Surfaces

Joints of brickwork wall shall be raked-out properly. Dust and loose mortar shall be brushed out. Efflorescence if any shall be removed by brushing and scraping., shuttering imperfections of all concrete shall be roughened by hacking with chisel and all resulting dust and loose particles cleaned and the surface shall be thoroughly hacked or bush hammered to the satisfaction of Engineer in charge/ Architect. The surface shall be thoroughly washed with water, cleaned and kept wet before plastering is commenced.

e)Approval of Engineer in charge/ Architect to be taken

No plastering work shall be started before all conduits, pipes fittings and fixtures clamps, hooks etc. are embedded, grouted and cured and all defects removed to the satisfaction of Architect/ Engineer in charge. Special approval shall be taken from Engineer in charge/ Architect before starting each plastering work. No cutting of finished plaster shall be allowed. No portion shall be left out initially to be patched up later on.

f) Mixing

The ingredients shall be mixed in specified proportions by volume. The mixing shall be done in a mechanical mixer. The cement and sand shall first be mixed thoroughly dry in the mixer. Water shall then be added gradually and wet mixing continued for at least a minute until mortar attains the consistency of a stiff paste and uniform colours Mortar shall be used within 30 minutes of addition of water. Mortar which has partially set shall not be used and removed from the site immediately.

14.41.2 Internal Surfaces

i) Plastering shall be started after the completion of ceiling plaster from top and gradually worked down towards floor. It shall not, at any place be thinner than as specified. To ensure even thickness and a true surface plaster of about 15cm x 15cm shall be first applied horizontally and vertically at not more than 2m interval over the entire surface to serve as gauges. The mortar shall then be applied to the wall/ surface between the gauges and finished even. All corner junctions and rounding shall be truly vertical or horizontal and finished carefully. In suspending work at the end of the day plaster shall be cut clean to line where recommencing the plastering, edge of old work shall be scrapped, cleaned and wetted with cement putty before restarting plastering.

ii) Cement plastering internally on all internal surfaces including soffits of RCC slabs, chajjas, lintels, around shelves, inner side of parapets and around of parabolas etc. shall be as shown on drawing. Wherever not shown it shall be as under :-

a) 15mm thick plaster in cement mortar 1:6 (1 cement: 6 parts 75% fine sand & 25% coarse sand) over brick and concrete surfaces. Rubbing out wherever required (i.e. bringing up the undulation on the rough face of brick work in level with proudest points) shall also be executed in the same mix along with rendering coat.

b) 12 mm thick plaster in cement mortar 1:3 (1 cement: 3 fine sand) for all ceiling surfaces and on soffits of RCC slabs, chajjas, and kitchen platforms and around of shelves and pergolas.

10mm x 6mm grooves shall be provided in ceiling plaster at junction of wall and ceiling.

14.41.3 EXTERNAL SURFACES:

A. EXPOSED BRICK WORK

Facing Bricks (Machine Made Brick Tiles)

The facing bricks made from suitable soils shall be free from cracks, flaws, nodules of free lime warpage and organic matter. These shall be thoroughly burnt and shall have plane rectangular faces with parallel sides and sharp straight right angled edges. Facing bricks shall have uniform colour and even texture. Unless otherwise specified, facing bricks shall be machine moulded. Selected hand moulded bricks may also be used as facing bricks where specified. As far as possible, total requirement of facing bricks for a work shall be arranged from the same kiln. Bricks with chipped edges and broken corners shall not be used.

Dimensions and Tolerances

The standard sizes of machine moulded facing bricks shall be as under:

The brick may be modular or non-modular. Sizes of both types of bricks/tiles shall be as per Table 1. While use of modular bricks/tiles are recommended, non-modular (FPS) bricks/tiles can also be used where so specified. Non-modular bricks/tiles of sizes other than the sizes mentioned in Table 1 may be used where specified.

TABLE 1

Bricks/tiles	Nominal size mm	Actual size mm	Type of
Modular Bricks	200 x 100 x 100 mm	90 x 90 x 90mm	
Modular tile bricks	200 x 100 x 40 mm	190 x 90 x 40mm	
Non-modular tile bricks	229 x 114 x 44 mm	225x111x 44 mm	
Non-modular bricks	229 x 114 x 70 mm	225x 11 x 70 mm	

TABLE 2

The permissible tolerances shall be as under:

Dimension	Tolerance (for Machine mm	moulded bricks) mm
Length	190 or 225	+ 3
Width	90 or 111	+ 1.5
Thickness	40 or 44	+ 1.5

Note: Tolerance and Dimensions for selected hand moulded bricks + 4mm in length and + 3mm in width and thickness.

Sampling and Tests :

Samples of bricks shall be subjected to the following tests:

- (a) Dimensional tolerance.
- (b) Water absorption.
- (c) Efflorescence.
- (d) Compressive strength.

Sampling:

For carrying out compressive strength, water absorption, efflorescence and dimensional tests, the samples of bricks shall be taken at random according to the size of lot as given in Table 3 below. the sample thus taken shall be stored in a dry place until tests are made. For the purpose of sampling, the following definition shall apply:

- (a) Lot : A collection of bricks of same class and size, manufactured under relatively similar conditions of production. For the purpose of sampling a lot shall contain a maximum, of 50,000 bricks.

In case of consignment has bricks more than 50,000 of the same classification and size and manufactured under relatively similar conditions of production, it shall be divided into lots of 50,000 bricks or part thereof.

- (b) Sample: A collection of bricks selected for inspection and/or testing from a lot to reach the decision regarding the acceptance or rejection of the lot.
- (c) Defective: A brick failing to meet one or more of the specified requirements. The samples shall be taken as below :

(i) Sampling from a stack: When it is necessary to take a sample from a stack, the stack shall be divided into a number of real or imaginary sections and the required number of bricks drawn from each section. For this purpose bricks in the upper layers of the stack shall be removed to enable units to be sampled from places within the stack.

NOTE: For other methods of sampling i.e. sampling in motion and sampling from lorries or trucks, IS: 5454 may be referred.

Scale of sampling and criteria for conformity for visual and dimensional characteristics:-

(i) Visual characteristics: The bricks shall be selected and inspected for ascertaining their conformity to the requirements of the relevant specification.

The number of bricks to be selected from a lot shall depend on the size of lot and shall be in accordance of Col. 1 and 2 of Table 3 for visual characteristics in all cases and dimensional characteristics if specified for individual bricks.

(ii) Visual Characteristics: All the bricks selected above in accordance with Col. 1 and 2 of Table 3 shall be examined for visual characteristics. If the number of defective bricks found in the sample is less than or equal to the corresponding number as specified in Col. 3 of Table 3 the lot shall be considered as satisfying the requirements of visual characteristics, otherwise the lot shall be deemed as not having met the visual requirements.

(iii) Dimensional Characteristics: The number of bricks to be selected for inspecting the dimensions and tolerance shall be in accordance with Col. 1 and 4 of Table 3. These bricks will be divided into groups of 20 bricks at random and each of the group of 20 bricks thus formed will be tested for all the dimensions and tolerances. A lot shall be considered having found meeting the requirements of dimensions and tolerance if none of the groups of bricks inspected fails to meet the specified requirements.

TABLE-3
Scale of sampling and permissible number of defectives for visual and dimensional characteristics.

No. of for individual bricks the lot	For visual characteristics specified group of 20 bricks	No. of bricks to be selected	Permissible No. of defective in the sample	For dimensional characteristics for bricks in group of 20 bricks -No.of bricks to be selected
(1)	(2)	(3)	(4)	(4)
2001-10000	20	1		40
10001-35000	32	2		60
35001-50000	50	3		80

Note: In case the lot contains 2000 or less bricks the sampling shall be as per decision of the Engineer-in-charge.

(iv) Scale of sampling and criteria for physical characteristics. The lot which has been found satisfactory in respect of visual and dimensional requirements shall be next tested for physical characteristics like compressive strength, water absorption, efflorescence as specified in relevant material specification. The bricks for this purpose from those already selected above. The number of bricks to be selected for each of these characteristics shall be in accordance with relevant columns of Table 4.

TABLE 4
Scale of sampling for physical characteristics

Lot size	sample size for compressive strength, water absorption and efflorescence	Permissible No. of defectives for efflorescence
(1)	(2)	(3)

2001-10000	5	0
10001-35000	10	0
35001-50000	15	1

Note: In case the lot contains 2000 or less bricks the sampling shall be as per decision of the Engineer-in-charge.

(v) A lot shall be considered having satisfied the requirements of physical characteristics if the condition stipulated here in are all satisfied.

(a) From the test results or compressive strength, the average shall be calculated and shall satisfy the requirements specified in relevant material specification.

Note: In case any of the test results for compressive strength exceeds the upper limit for the class of bricks, the same shall be limited to the upper limit of the class for the purpose of averaging.

(b) Wherever specified in the material specification, the compressive strength of any individual bricks tested in the sample shall not fall below the minimum average compressive strength specified for the corresponding class of brick by more than 20 per cent.

(c) From the test results for water absorption, the average for the bricks in the sample shall be calculated and shall satisfy the relevant requirements specification in material specification.

(d) The number of bricks failing to satisfy the requirements of the efflorescence specified in the relevant specification should not be more than the permissible no. of defectives given in Col. 3 of Table -4.

Physical Requirements

Facing bricks shall be of class designation 75 unless otherwise specified. Average compressive strength shall not be less than 7.5 N/mm² water absorption shall not exceed 20 per cent by weight and efflorescence rating shall be nil when tested in accordance with the procedure laid down and tolerance in dimensions shall be checked as per the procedure laid down in Appendix A-2.

Mortar, Soaking of Bricks and laying:

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

Soaking of Bricks : Bricks shall be soaked in water before use for a period for the water to just penetrate the whole depth of the bricks. Alternatively bricks may be adequately soaked in stacks by profusely spraying with clean water at regular intervals for a period not less than six hours. The bricks required for masonry work using mud mortar shall be soaked. When the bricks are soaked they shall be removed from the tank sufficiently early so that at the time of laying these are skin-dry. Such soaked bricks shall be stacked on a clean place where they are not again spoiled by dirt earth etc.

Note I: The period of soaking may be easily found at site by a field test in which the bricks are soaked in water for different periods and then broken to find the extent of water penetration. The least period that corresponds to complete soaking will be the one to be allowed for in construction work.

Note II: If the bricks are soaked for the required time in water that is frequently changed the soluble salt in the bricks will be leached out, and subsequently efflorescence will be reduced.

Laying : Bricks shall be laid in English Bond unless otherwise specified. For brick work in half brick wall, bricks shall be laid in stretcher bond. Half or cut bricks shall not be used except as closer where necessary to complete the bond. Closers in such cases, shall be cut to the required size and used near the ends of the wall. Header bond shall be used preferably in all courses in curved plan for ensuring better alignment.

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

Joints in the exposed brick work shall be truly horizontal and vertical and kept uniform with the help of wooden or steel strips. The thickness of all types of joints including brick wall joints and cross joints shall be such that four course and three joints taken consecutively shall measure as follows:

(i) In case of modular bricks conforming to IS : 1077 specification for common burnt clay buildings bricks, equal to 39 cm.

(ii) In case of non-modular bricks, it shall be equal to 31 cm.

Note: Specified thickness of joints shall be of 1 cm. Deviation from the specified thickness of all joints shall not exceed one-fifth of specified thickness.

Curing and Scaffolding

Curing: The brick work shall be constantly kept moist on all faces for a minimum period of seven days. Brick work done during the day shall be suitably marked indicating the date on which the work is done so as to keep a watch on the curing period.

Scaffolding: Scaffolding shall be strong to withstand all dead, live and impact loads which are likely to come on them. Scaffolding shall be provided to allow easy approach to every part of the work.

Double Scaffolding: Where the brick work or tile work is to be exposed and not to be finished with plastering etc. double scaffolding having two independent supports, clear of the work, shall be provided.

B) Designer Tiles / Dholpur stone / Red stone work

1 All concrete/plastered surfaces to receive stone cladding shall be properly hacked and cleaned of all loose particles and wetted with sufficient water.

2 Dholpur/Red stone slab of required size, 20-25 mm thick to be fixed over Laticrete adhesive.

3. Laticrete is a dry set adhesive, use with water or latex additives.

4. The stone shall be secured to the bracing by means of clamps @ 4 min/ Sqm.

5. Measurement

The finished length accurate to second decimal shall be measured.

6. Rate shall include all materials, labour and other accessories required to complete the work at all heights and depths as required at the site.

14.41.4 LATICRETE ADHESIVE FOR WALLS

a) Material for Plastering : The product shall be a mix of cement and clean sand in a ratio of 1:6, the applied plaster shall be cured for at least 7 days prior to fixing tiles. Standard procedures shall be adopted to install a plaster of high strength with a good bond between the masonry surface and the new plaster, The plaster should be free of cracks for durable installation of tiles.

b) Material for fixing Tiles: The product shall be laticrete 111 crete filler powder mixed with Laticrete 73, latex admix as manufactured by Laticrete International/ Laticrete India Pvt. Ltd. The tile adhesive formed shall have high bond strength, weather, thermal and shock resistance.

c) Material for Grouting: Material for grouting i.e joint filling shall be Laticrete 500 series grout mixed with laticrete 282 grout admix for joints 3mm-12mm as manufactured by Laticrete International/ Laticrete India Pvt. Ltd. The grout formed shall be strong, resistant to weather, cracking and discoloration.

C. Flakes – Granite Finish on cement plaster

Flakes – Granite finish’ shall given on the external surfaces of building as per detailed elevation drawings.

“Flakes – Granite finish ” is a textured surface coating material manufactured by Bakelite Hylam Limited/ Spectrum.

“Flakes – Granite finish” comes in a three packs comprising ‘Dry Granite Flakes’ ‘Flakes Bonding Agent’ and Top coat (HGTC). Dry Granite Flakes’ are made from china clay, pigments (primarily inorganic), Homo-polymer emulsion, mica etc. ‘Flakes Bonding Agent’ is made from pure acrylic co-polymer emulsion, broad-spectrum fungicide etc. Top coat (HGTC is made from solvent based acrylic polymer.

The ‘Dry Flakes’ are mixed with ‘Flakes Bonding Agent’ is recommended quantity of water. The dough is then trowelled on to the substrate to be coated to get an average coating thickness in the range of 0.8- 1.2mm. After through drying of coated Granite flakes the surface is sanded and dust is removed. Top coat is then applied using a brush.

Granite finish ” shall be applied only be an authorized dealer of Bakelite Hylam Limited/ Spectrum, with the help of a trained applicator, in accordance with the Company’s ‘Application Instructions’.

14.41.5 SUBHEAD – PLASTIC EMULSION AND FINISHING

1. Emulation shall be provided to all ceiling and internal surfaces of lofts staircase, stair lobby and of all building as shown on drawings.

2. Emulation of approved shade shall be provided to all internal surfaces of walls as shown on drawings.

3. Before application of Emulsion the surfaces shall be prepared to a clean and even surface.

4. Emulsion shall be carried out in three coats.

5. Emulsion shall be carried out over white cement based putty as per manufacturer instructions to give even shade.

6. Emulsion shall be applied in specified coats by using flat brushers or spray pumps. Each coat shall be allowed to dry before next coat is applied, if additional coats than what have been specified are necessary to obtain uniform and smooth finish, it shall be given at no extra cost.

7. The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed.

14.41.6 WALL PUTTY : BIRLA PUTTY

APPLICATION

1. Before applying remove all loosely adhering material from the wall surface with sand paper, putty blade or wire brush.

2. Moisten the walls with sufficient quantity of water.

3. Mix the putty with 40- 50% water to make a workable paste.

4. Apply the first coat of putty on moistened surface from bottom to up words uniformly and left to dry for at least 3 hours.

5. Apply second coat and allows to dry for one day and finally rub the surface with fine emery paper to remove unevenness and to get glossy white surface.

6. Emulsion shall be applied in specified coats by using flat brushers or spray pumps. Each coat shall be allowed to dry before next coat is applied, if additional coats than what have been specified are necessary to obtain uniform and smooth finish it shall be given at no extra cost.

7. The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed.

14.41.7 PAINTING

1.Exterior Emulsion / Texture Paint : Before the application of cement based paints, the surface shall be cleaned and wetted with water. Two or more coats of cement base paint shall be applied to give even shade on all external cement plaster surfaces, internal cement plaster surfaces of parapets, soffits of chajjas, lintels, beams, and sills as shown on drawings. The shade of the paint shall be used as approved by Engineer in charge/ Architect. Each coat shall be cured well by wetting surfaces for at least three days. This shall apply to all buildings.

2. Painting to Steel Surfaces: All exposed steel surfaces shall be prepared, cleaned with sand paper to completely remove scales and rusts and shall be painted with two or more coats of synthetic enamel paint to give an even shade over one coat of steel primer. The shade of synthetic enamel paint shall be as approved by Engineer in charge/ Architect.

3. Painting to CI and GI Pipes : All exposed CI and GI pipes shall be painted by applying two or more coats of synthetic paint. The shade and quality shall be as approved by Architect/ Engineer in charge.

14.41.8 MODE OF MEASUREMENTS: The method of measurement for various items in the tender shall be generally in accordance with the IS : 1200 subject to the following :

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

S.No.	Description of Multiplying Work.	How Measured	Factor
(1)	(2)	(3)	(4)
1.	Panneled or framed each and braced ledged and battened and braced joinery	Measured flat (not githered) including CHOWKAT of frame Edges chocks, cleats, etc., shall be deemed to be included in the item.	1.30 (for side)
2.	Flush joinery	Measured flat (not githered) including CHOWKAT of frame Edges chocks, cleats, etc., shall be deemed to be included in the item.	1.20 (for side)
3.	Fully glazed or guazed joinery	Measured flat (not githered) including CHOWKAT of frame Edges chocks, cleats, etc., shall be deemed to be included in the item.	0.80 (for each side)
4.	Partly panneled and partly glazed or guazed joinery	Measured flat (not githered) including CHOWKAT of frame Edges chocks, cleats, etc., shall be deemed to be included in the item	1.00 (for side)

5.	Fully venetioned or louvered joinery	Measured flat (not githered) including CHOWKAT of frame Edges chocks, cleats, etc., shall be deemed to be included in the item	1.80 (for each side)
6.	Weather boarding	Measured flat (not githered) supporting framework shall be measured seperately	1.20(for each side)
7.	Wood shingle roofing	Measured flat (not githered)	1.10(for each side)
8.	Boarding with cover Fillets and match	Measured flat (not githered)	1.05(for each side)
9.	Tile and slate Battening	Measured flat (not githered) No deduction shall be made for open spaces.	0.80 (for painting all ove)
10.	Trellis (or JAFRI work) one- way or Two way	Measured flat over all , no deduction shall be made for open spaces, supporting Members shall not be measured seperately.	2.00 (for painting all over)
11.	Guard bars balustrade, gates grating, grills expanded metal railing	Measured flat over all , no deduction shall be made for open spaces, supporting Members shall not be measured seperately.	1.00 (for painting all over)
12.	Gates and open palisade fencing including standards Braces, Rails Stays etc.	Measured flat over all , no deduction shall be made for open spaces, supporting Members shall not be measured seperately.	1.00 (for painting all over)
13.	Carved or enriched work	Measured flat	2.00(for each side)
14.	Steel rollers	Measured flat (size	2.00(for each side)

	shutters	of opening) overall jamb guides, bottom rails and locking arrangement,etc. shall be included in the item (top cover shall be measured seperately)	
15.	Plain sheet shall Doors and windows	Measured flat (not githered) including frames edges etc.	1.10(for eachside)
16.	Fully glazed or guazed steel doors and windows	Measured flat (not githered) including frames edges etc.	0.50(for eachside)
17.	Partly panneled and partly glazed or Guazed steel doors	Measured flat (not githered) including frames edges etc.	8.80(for eachside)
18.	Collapsible gate	Measured flat (size opening)	1.00 (for painting all over)

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

14.41.9 EXPANSION JOINT

POLYSULPHIDE SEALANT :-

It should conform to BS – 4254 – 1983

Surface should be clean, dry and free from any loose material.

Masking tapes are to be used on edge of the joint.

Sealant shall be applied by using suitable gun.

Immediately after filling the joints, the sealant shall be tooled either with stainless steel or wooden spatula of the size of the joint, while tooling the spatula should be wetted with soap water for wetting.

The rate shall be inclusive of all operation i.e labour, material, T & P, scaffolding etc. complete. Nothing extra shall be payable on any account.

Skin contact shall be avoided.

Polyurethane Sealant

Surface should be clean, dry and free from any loose material.

Expanded polyethylene backup rod of diameter (diameter of the rod should be 5mm greater than the width of the joint) of density not less than 28 kg/cum should be provided to allow unrestrained stretching of the sealant.

Masking tapes are to be used on edge of the joint.

Filling the joint up to a depth of 12mm / 15mm for joint width 25m/40mm respectively.

Immediately after filling the joints, the sealant shall be tooled to ensure neat and clean finish of the joint.

Skin contact shall be avoided.

Rates shall be inclusive of all operations including labour material, backup rod, T&P scaffolding etc. complete. Nothing extra shall be payable on any account.

14.41.10 SUBHEAD - INTERNAL PLUMBING WORK (INTERNAL WATER SUPPLY , PLUMBING, INTERNAL DRAINAGE)

14.41.10.1 GENERAL

1. (a) The form of contract shall be according to the “Conditions of Contract”. The following clauses shall be considered as an extension and not in limitation of the obligation of the Contractor .
(b) Work under this contract shall consist of furnishing all labor, materials, equipment and appliances necessary and required. The Contractor is required to completely furnish all the plumbing and other specialized services as described hereinafter and as specified in the schedule of quantities and/or shown on the plumbing drawings.

2.Scope of internal water supply, plumbing, internal sewerage and drainage shall consist of providing and fixing of the following for each blocks as shown on drawings.

- (a) GI pipe with fittings and valves for cold and hot water supply.
- (b) Sanitary fixtures, CP fittings and accessories.
- (c) Soil, waste, vent, rain water pipes and fittings.
- (d) Overhead water tank at Terrace with supports.
- (e) Internal Drainage including gully traps.

3. The entire work shall be carried out by licensed plumbers.

Water Supply

4. Scope of internal water supply will include the following for each Blocks :-

(a) One over head water tank of capacity as specified 3 layered PEF insulated for each block complete with all fittings including Man Hole cover, Ball valve and necessary supports for fixing on terrace/roof, as per details shown on the drawings.

(b) All GI pipes and fittings from over head tank to all taps, wall mixers, wash basins, cisterns, sinks, geyser points, washing machine and showers as shown on drawings.

c) Provision of hot and cold water supply lines in all toilets and kitchen .

NOTE : External water supply distribution mains including water services connection of each Block up to OH tanks (at terrace) and control valves for water supply lines .

14.41.10.2 MATERIALS

1. All GI pipes shall be galvanized steel tubes medium grade conforming to IS-1239 and ISI marked of approved makes.

2. All GI fittings shall be conforming to IS-1879 and ISI marked.

3. Valve shall be heavy Gun metal full way conforming to IS-778-1971 class I and ISI marked.

14.41.10.3 LAYING, FIXING AND FITTINGS OF GI PIPES

1. All GI pipes below ground shall be laid in trenches and shall have minimum cover of 600mm.

2. The runs of the pipes shall be straight and pipes shall not run diagonally. Proper bends, elbows, tees at turnings/corners shall be used.

3. All GI pipes with necessary fittings wherever they are laid on internal faces of the walls shall be concealed in chase. On external faces they will be laid on walls fixed with G.I. clamps or on M.S. angle iron brackets as shown in drawings.

4. In the concealed portion of plumbing no joints shall be provided in the pipe lines except in the fittings i.e., bends, elbows, tees and nipples where required.

5. All GI pipes for water supply (Hot or cold) within toilets and kitchen shall be laid in walls only. No GI pipe shall be laid in sunken portion of toilets/kitchen.

6. For each block the size of down comers, branch pipes from the ring (at terrace) from over head tank and branch pipes from down comers shall be of sizes as shown on drawing.

7. Pipes and fittings shall be jointed with screwed fittings, care shall be taken to remove burrs from the end of the pipe after cutting by a round file. Genuine white/red lead and a few strands of cotton thread shall be applied. All pipes shall be fixed in accordance with layout shown on the drawings. Care shall be taken to avoid air pockets. GI pipes inside toilets shall be fixed in wall chases at least 30cm above the floor.

8. GI pipes in shafts and other locations shall be supported by GI clamps of design as indicated in the Typical detail. Pipes in wall chases shall be anchored by iron hooks.

9. Unions: Contractor shall provide adequate number of unions on all pipes to enable dismantling later. Unions shall be provided near each gun metal valve, stop cock, or check valve and on straight runs as necessary at appropriate locations as per direction of Engineer in charge of SBI/ Architect.

10. Puddle Flanges: Puddle flanges shall be provided to all connection i.e. inlet overflow, and scour of the over head tank wherever required.

11. Pipe Protection : All pipes in chase or under floors or below ground shall be protected against corrosion by applying two coats of bitumen paint, covered with polythene tape and finished with final coat of bitumen paint.

12. Painting: All exposed pipes shall be painted with two coats of oil paint over one coat of primer. pipes shall be painted to standard color code as approved by Engineer in charge/Architect.

14.41.10.4 Over Head Tanks

(a) RCC Over Head Water Tanks shall be provided at terrace as shown in the drawing.

(b) These tanks shall be constructed on the roof terrace as per details shown on drawings.

(c) Each over head tank shall be complete with the following:

Inlet, outlet, over flow(25mm), scour pipe (20mm) and Air vent pipe with all fittings.

ii) Mosquito proof coupling shall be provided to overflow and air vent pipes.

iii) The inlet pipe to the over head tank shall be provided with ISI marked full way gunmetal brass valve and each outlet pipe shall be provided with ISI marked full way gunmetal valve of size of out let pipe as shown in the drawing.

iv) The over flow pipes shall be brought down up to the finished terrace level on terrace.

(d) Vent pipes : Each down take pipe shall be provided with a vent pipe. The height of the vent pipe shall be 150mm above the top of the water tank.

14.41.10.5 Testing of GI pipes

(a) All pipe lines shall be tested hydraulically to pressure of 7Kg./Sq.cm. for a minimum period of 24 hours for leakage.

(b) The pipe line in chase of under floors/ground shall be covered up only after the testing is carried out satisfactorily and passed by the Engineer in charge/Architect.

(c) The instrument, equipment and water for testing shall be arranged by the contractor without extra charges. (i.e. Hydraulic testing machine with pressure gauge).

(d) A test register shall be maintained by the Engineer in charge and all entries shall be signed and dated by the Contractor, Engineer in charge/Architect.

14.41.10.6 Insulation

(a) Hot water line in chases shall be provided with 20mm thick insulation by wrapping 6mm dia asbestos rope and finishing with a coat of 85% magnesia.

14.41.10.7 Approval of layout of GI pipes and position of fixtures at site

a) The Contractor shall mark the location of all fixtures and fittings and layout of GI pipes on the terrace walls/ground at site and taken approval of Engineer in charge/Architect before commencement of cutting chases for GI pipes within the building and digging trenches outside the building.

14.41.10.8 Sanitary Fixture and CP Fittings and Accessories

a) All sanitary ware shall be first quality white-vitreous china and shall be inclusive of all fixing devices nuts, bolts and hangers/Brackets.

These shall be from one of the following manufactures:-

- i) Hindustan Sanitary Ware
- ii) Parry Ware
- iii)Hydrobath

b) It will be ensured that all sanitary fixtures are from one manufacturer only for the entire work. However, if due to any reason contractor proposes to provide part quantity from other manufacturer as approved above, then he may be permitted, but he will have to obtain specific approval of Engineer in charge/Architect for this change in brand. This will be subject to that all items and fixtures in any particular block/other buildings shall be always of one manufacturer only. In no circumstances items of two manufacturers shall be used in all of the toilets of particular block/other buildings.

14.41.10.9 Kitchen sink and draining Board:

a) Kitchen sink and draining boards shall be of stainless steel (NIRALI) make. The sink and draining board shall be in one piece of following sizes with rectangular compartment/bowl. Each sink shall be provided with one CP brass waste and PVC waste pipe.

b) Kitchen Sink shall be supported on RCC platform having suitable cut for the bowl of the sink as per the details shown on the drawings.

c) All bib cocks, stop cocks, angle-valves, pillar taps, mixtures, showers rose & arm, bottle traps, CP waste and inlet connections and other minor fittings shall be brass chromium plated. These shall be ISI marked where manufactured. Contractor shall obtain the approval of the name of the manufacturer and brand of CP brass fittings from Engineer in charge/Architect before placing the supply order. If demanded, a copy of the Bureau of Indian Standard letter under which the manufacturer has been issued the license and authorized to mark the five items of CP brass fittings as listed in hereinafter below with ISI marking should be submitted One sample of each fittings of the particular brand duly ISI marked shall be given by Contractor.

e)If any of the CP brass fittings which are not manufactured as ISI marked these shall be of the same brand of other ISI marked CP brass fittings approved by Engineer in charge SBOP.

f)All chromium plated brass fittings and accessories shall be provided with CP cast brass wall flanges.

g) For fixing of CP brass fittings wherever required CP brass extension pieces shall be provided.

h) Fixing screws shall be half round head chromium plated brass screws with CP washers.

i) All exposed pipes, if any, within the toilets and near the fixtures shall be chromium plated brass except otherwise specified.

Schedule of Sanitary and CP Brass fittings in each Block shall be as under :-

(a) **Kitchen**

(i) Stainless steel Sink with drain board of overall size 510x1060 with bowl size of 500x400 x 200 mm.

(ii) CP Brass waste coupling.

(iii) Sink Mixer

(iv) GI Waste pipe 40mm dia from CP Waste to floor drain grating.

(b) Toilets: All vitreous china sanitary wares. The fittings and fixtures in toilets of each Block shall be as under :

(A) **Wash Hand Basin**

i) Vitreous china first quality.

wash basin 550x400mm counter top type

ii) CP Brass waste 32mm dia with over flow.

iii) CP Brass bottle trap with CP brass pipe to wall with CP brass wall flange.

iv) CP Brass Basin Mixer.

v) CP Brass angle valves with PVC connecting pipes with nuts and washers.

NOTE: Outlet of CP brass bottle trap shall be connected to nearest floor trap by GI waste pipe (concealed) as per details shown on drawings.

(B) **Water Closets and Cisterns**

i) European type white vitreous china ware pedestal type and cistern

ii) White 6.00 litre capacity low level flushing cistern with fittings and C.I/M.S brackets.

iii) W.C with concealed type flush bend, over flow arrangements, mosquito proof coupling.

iv) CP brass angle valve with PVC connecting pipe with nut and washer.

v) Bakelite solid type seat and cover ISI marked Type 1A (IS-2548-1983) with CP brass Hinges commander brand (white colour).

vi) G.P jet spreader complete set with concealed stop cock.

c) **BATH TUBS**

Hydro bath make corner model of size 1230 x 1230 x 380mm.

Hydro bath make rectangular model of size 1690 x 755 x 435mm.

(D) Urinals

White vitreous chinaware flat back urinal of size 630 x 400 x 420 mm with 12 mm angle valve, C.P spreader, C.P dome grating, C.P brass flush pipe.

(E) Shower and Taps

(i) CP brass wall mixer with bend for over head shower with central control knob for three positions, for supply to spout, second to stop and third for supply of shower.

(ii) 100mm dia CP brass shower rose 15mm with ball joint and 230mm long CP brass extension pipe.

(F) Towel Rail

i) CP brass towel rail 20mm dia 16 gauge 600 mm long including brackets.

(G) Towel Ring

i) CP brass towel ring 200 mm dia with CP brass brackets fixed to wall with flanges and CP brass screws.

(H) Mirror of size as specified in the items and 4mm thickness over every wash hand basin. The mirrors shall be of make Modi float or Atul Brand made from Tata Ashi float glass. The mirror shall have marine ply backing 9mm thick with teak wood moulding all around of size 1-1/2" x 3/4 "

(I) Peg Sets: Aluminium Anodized with 3 hooks.

(J) Gratings:

(i) All floor traps (FT) and floor drains (FD) shall be provided with 100mm round stainless steel gratings respectively of approved design and shape. The weights of 100mm dia gratings shall not be less than 100 gms.

ii) Gratings for floor drain (FD) below sink in kitchen shall have suitable hole for passing GI waste pipe from sink.

Geysers: Scope for arrangement of fixing of Geysers included in this contract is as under :-

(a) Arrangement for fixing electric geyser vertical type on each in toilets.

(b) At the inlet pipe of all Geysers one number CP brass angle valve shall be provided.

(c) The ends of inlet and outlet pipes shall be connected with on PVC connecting pipe with CP brass nuts and washers. This is to pass the water from inlet to outlet till Geyser is installed at a later date.

(d) Provisioning and fixing of Geysers is beyond the scope of this contract.

14.41.10.10 Installation of Sanitary Fittings

(a) European Type water closets shall be fixed with brass screws of suitable length with PVC plugs or phill plugs embedded in the floor after drilling hole in floor. It should be coupled with low level flushing cistern complete with rubber cone adapters etc, all as per manufacturer instructions.

(b) Wash hand basins shall be fixed firmly to wall with MS angle iron brackets. The brackets shall be given two coats of white enamel paint over a coat of primer. In addition the wash basin shall be securely fixed to walls with a pair of 25x3mm MS clips screwed with rawl plugs to walls (placing of basin over the brackets with out secure fixing on wall shall not be accepted).

(c) Indian type Water Closets shall be embedded firmly in the floor and its surrounding packed with cement concrete (1:3:6) 40mm graded aggregate below the level of top of the Closet to receive the top layer of floor finish. WC shall be set in the CI trap in cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 20mm nominal size), joint between WC and Flush pipe will be made in the pre-moulded rubber joint.

d) Urinals: Urinals shall be flat back white glazed vitreous china of first quality and size 630 x 400 x 420 mm size.

(i) Urinals shall be provided C.P spreader, 32mm dia CP domical waster and C.P angle valve, and shall be fixed to wall by one CI bracket and two CI wall clips complete as recommended by manufacturer's directives/Engineer in charge.

(ii) Half stall urinals shall be fixed with C.P. brass screws.

(iii) Flush pipes shall be G.I. pipes concealed in wall chase but with chromium plated bends at inlets and outlets.

(iv) Urinals may be flushed with flush valves as described in the item.

(v) Waste pipes for urinals shall be any of the following.

a) G.I. pipes. b)Rigid PVC.

Waste pipes may be exposed on wall or concealed chase as directed by the engineer-in-charge.

Specifications for waste pipes shall be same as given in SUBHEAD II.

14.41.10.11 Internal Drainage:

Scope of internal sewage disposal and drainage system for all buildings/under this contract will include the following and shall be provided as per the layout/locations shown on drawings:

- (a) GI floor drains in toilets and kitchen.
- (b) HCI waste pipes and their connections up to Gully traps.
- (c) HCI soil pipes and their connections up to nearest manholes.
- (d) Vent pipes with vertical stacks
- (e) All floor traps and gully traps.

NOTE: SWG sewerage lines from Gully Trap and nearest manholes onwards shall be measured and paid separately .

Soil, Waste, Vent and Rain Water Pipes: All pipes shall be sand cast iron and shall comply to IS-1729 of 1979 and shall be ISI marked. Where shown on drawings the floor drains (FD) shall be of GI pipe medium grade ISI marked.

All cast iron pipes fittings like bends, branches, floor traps, tees 'Y' junctions, in waste, soil and vent pipes shall be sand cast iron comply with IS 1729 and shall be ISI marked. These shall be spigot and socket "Access door shall be made up with 3mm thick insertion rubber washer and white lead. The bolts shall be lubricated with grease or white lead for easy removal later. The fixing shall be air and water tight".

Cast Iron Traps

Floor trap shall be cast iron, deep seal with an effective seal of 50mm. The trap and waste pipes shall be set in cement concrete blocks firmly supported on the structural floor. The blocks shall be in cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20mm nominal size) and extended to 40mm below finished floor level. The concrete portion at top of the floor trap inlet shall be finished smooth and water proofed by applying neat cement slurry mixed with water proofing compound. Size of the blocks shall be 30x30cms of the required depth. The trap shall be 100mm inlet and 100mm outlet for kitchen and for toilets. Traps shall have extension pieces to receive waste lines as indicated in typical details.

Urinal Traps

Urinal traps shall be cast iron P&S trap with or without vent and set in cement concrete block specified in para above without extra charge.

Clean out Plugs

Contractor shall provide cast brass cleanout plugs as required. Cleanout plugs shall be thread and provided with key holes for openings. Cleanout plugs shall be fixed to the pipe by a G.I. socket lead caulked.

Laying and Joining of CI (Cast Iron) Pipes:

- (a) Pipes and fittings shall be fixed truly vertical horizontal or in slope as required in a neat workmanship. Pipes shall be fixed in a manner as to provide easy accessibility for repairs and maintenance and shall not cause obstruction in shafts etc.
- (b) All vertical pipes shall be fixed by MS clamps truly vertical Branch pipes shall be connected to the stack at the same angle as that of fittings. No collar shall be used in HCI pipes laid in sunken portion of slabs and vertical stacks. Each stack shall be terminated at top with a cast iron COWL and to the height as specified hereinafter.
- (c) MS clamps shall be standard design and fabricated from MS flat 40x3mm thick anchored directly to walls, concrete slabs, beams or column or as indicated in detailed drawings or and as directed by Engineer in charge/Architect.
- (d) Joints in cast iron soil, waste, vent and rain water pipes shall be lead caulked joints. Quantity of lead to be used for each joint shall be 1.2Kg. for 100 dia pipes, 1.00 Kg. for 75 mm dia pipe and 0.80 Kg. for 50mm dia pipe.

- (e) The water closet in ground, first and second floor shall be connected to the common soil pipe coming vertically downwards along the external face of walls with single branch connections with necessary bends/Y junction containing access doors. A vent pipe shall be provided from the single branch connection at the last floor level (as a continuation of the soil pipe) taken vertically upwards up to 800mm above the top of parapet wall and shall be provided at top with cast iron cowl.
- (f) CI/GI waster pipes and HCI soil pipes laid under floors shall rest in cement concrete 1:2:4 (1 cement:2 coarse sand:4 parts stone aggregate 20mm, 70mm thick minimum) 300mm wide. All pipes and fittings shall also be encased all-round with concrete 1:2:4 70mm thick.
- (g) Floor traps shall have extension pieces to receive waste pipes. Waste pipes from floor traps shall be connected to common waster pipe coming downward along the external face of walls with single branch connections with necessary bends/Y junctions containing access doors. The common waste pipe shall run vertically downwards up to gully trap. A vent pipe shall be provided from the single branch connection at top of parapet wall and shall be taken vertically upward up to 800mm above the top of parapet wall and shall be provided at top with a cowl and fixed with iron clamps.
- (h) Cast iron drain pipes passing under the building shall be laid before commencement of works in foundations and where passing through concrete work inserts/sleeves should be left before casting the concrete.
- (i) Drain pipe shall be laid to levels/slopes indicated in drawings.
- (ii) Soil, waste, vent and rain water pipes in exposed location in shafts and pipe space shall be painted with two or more coats of oil paint to give an even shade. G.I. pipes in chases shall be painted with two coats of bitumen paint.

Gully Traps

- (a) Gully traps shall be of the same quality as described for stoneware pipes.
- (b) After excavation gully traps shall be fixed on 100 mm thick cement concrete 1:5:10 mix (1 cement:5 coarse sand:10 stone aggregate 40mm nominal size). After fixing the gully trap and pipe a brick masonry chamber 1'x1' inside in 4-1/2" thick brick work around the gully trap in cement mortar 1:5(1 cement: 5 coarse sand) shall be constructed up to the ground level. The space between chamber wall and the trap shall be filled in with cement concrete 1:5:10 (1cement: 5 coarse sand:10 stone aggregate 49mm nominal size). The upper portion of the chamber shall be plastered inside with cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement with all corners rounded off sloping towards the grating. A square CI grating shall be fixed on trap inlet.

Testing:

- a) HCI soil and waste and vent pipes. These shall be tested to hydraulic test of 8 mtr. head.
- b) The joints of CI pipes coming under floors/walls shall be covered up only after testing is carried out satisfactorily and passed by Engineer in charge/Architect.
- c) For SWG pipes test as indicated in particular specification part III shall be carried out.
- d) A test register shall be maintained which shall be signed and dated by Contractor, Engineer in charge and Architect.

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Approval of layout of waste/soil/GI/CI/SWG pipes, Floor traps, gully traps and manholes. The Contractor shall mark the location of these pipes, floor traps, gully trap and MG on floors / walls/ground at site and take approval of Engineer in charge/Architect before commencement and cutting of holes in walls, digging of trenches and laying of pipe lines. Record of these approvals should be recorded in a register and kept in Engineer in charge's office.

On completion of the works, the following tests shall be performed to the satisfaction of the architects/ Employer before issue of virtual completion certificate, if sobe required

- a. Smoke test.
- b. Hydraulic test .
- c. Self inducted test for fixtures .
- d. Test for anti syphonage system.
- e. Pump rating and output.
- f. Inspection of all units and fixtures.

14.42 SUB HEAD - BOREWELL

1. Drilling with direct Rotary reverse hydro pneumatic rotary rig drill with 600/450 mm dia bore.
 2. Fixing M.S (ERW) Housing pipe 300 mm dia with 5.6 mm wall thickness including sockets etc.
 3. Fixing M.S (ERW) 200 mm dia slotted pipe with 1.5 mm to 3 mm slots as per strata conditions including sockets and reducer etc.
 4. Fixing M.S Blind pipe 200 mm dia medium class coupling etc.
 5. Fixing bail plug with hook 200 mm dia.
- Fixing M.S centring guides 200 mm dia.
7. Fixing 300 mm dia M.S clamps 1.00 Meter long 100 x 12 mm flat.
 8. Inserting of pea gravel and packing the same in space between boring and well assembly with pea gravel of 3-6 mm size after screening and washing.
 9. Development with air compressor (80 Hours).
 10. Sanitary sealing as per Specifications.
 11. Testing of water sample for drinking purpose in standard Laboratory approved by the Engineer in charge/ Architect or furnishing the report.
 12. Testing of tube well for yield Test.

13. Fixing of M.S well cap.

14. Fixing of submersible pump of 16 HP with all electrical fittings of approved make.

**15. LIST OF APPROVED MANUFACTURERS / NATURAL SOURCES OF MATERIALS TO BE USED IN THE CIVIL WORKS SUBJECT TO THE APPROVAL OF SAMPLES BY THE CONSULTANT.
(ALL THE MATERIALS USED HAVE TO CONFIRM TO GREEN INTERIOR NORMS OF IGBC)**

S. No	MATERIAL NAME.	BRAND / MANUFACTURER.
1.	CEMENT	L&T, BIRLA, ACC or any other approved brand 43 GRADE FOR plastering AND 53 GRADE FOR RCC WORKS
2.	ANTI-TERMITE CHEMICALS	CHLOROPYROPHOS, EMULSIFIABLE CONCENTARATES
3.	CLAY BRICKS	GOOD QUALITY BRICKS
4	PAINTS	ASIAN, NEROLAC, JOTUN, BIRLA EXTERIOR GRADE AND INTERIOR GARDE
5	HYSD / MILD Steel (TMT)	TATA, SAIL, VSP
6	SAND	RIVER SAND
7	TEXTURE PAINT	BIRLA, SPECTURM, ASIAN
8.	GROUTS & EPOXY	LATECRETE EPOXY, BOSTIK EPOXY, DR FIXIT
9.	WATER PROOFING	FORSOC, ALGI PROOF, DR FIXIT
10.	EXTERNAL PUTTY	BIRLA, ASIAN
11.	M.S STEEL TUBULAR HOLLOW SECTIONS SOILD SECTIONS, FLATS	TATA, SAIL, VSP, JSW, MITTAL
12	EXTERNAL PUTTY	BIRAL
13	SWG PIPES	INDO or nay other approved brand
14	FIRE PROOF DOORS	SHAKTHI HARMON, I CLEAN, MORESCHI

NOTE : The contractor shall use only above mentioned materials. All other materials shall confirm to the specifications laid down. The tenderer shall take this into account while tendering rates / prices. The Consultant / SBI has got every right to select any of the above Makes for the Project. However the samples of every material including all fixing accessories shall be got approved by SBI / Consultant before Execution.

16. LIST OF REGISTERS / RECORDS TO BE MAINTAINED AT SITE BY THE CONTRACTOR FOR THE FOLLOWING MATERIALS / ITEMS

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- Cement
- Steel
- Anti – termite chemical
- Test Reports
- Brick work
- Hindrance
- Labour wages
- Site Order Book

Apart from the above, some other registers also to be maintained as and when required.

16. LIST OF MANDATORY TESTS :

TEST	TEST PROCEDURE	MINIMUM QUANTITY	FREQUENCY
Cement	From Manufacturer		For each lot
SAND			
Silt Content	Field	40 Cum	40 cum or part thereof
Bulking	Field	40 cum	50 cum or part thereof
Particle size distribution	Field	80 cum	Every 80 cum or required in RCC work.
COARSE AGGREGATE		135 cum	Every 135 cum or part thereof for RCC work for rest of work as desired.
Particle size Distribution			
R.C.C.			
Slump			Once a day or as desired.
Cube Strength	From lab	20 cum in slab beams and connected columns 5 cum in column	Every 20 cum of a days concrete. Every 5 cum in column concrete.
BRICKS :			
Water absorption and efflorescence	From lab	Designation 40	One test for each source of manufacture
Compressive Strength	Rom lab	Designation 40	1,00,000 or part

			there of Two tests for 1st lot of 1,00,000 and one test later for every 2,00,000 and part thereof.
TIMBER :			
Species		1 cum	Every three cum and part.
Moisture		1 cum	Every three cum and part.
UPVC DOORS AND WINDOWS	IS – 4020AND 4021		5% of Nos. Manufactured.
Thickness of anodic coating			
MORTICE LOCK : Testing of Springs		50 nos	100 OR part thereof
STEEL :			
A. Tensile Strength	IS 1529	20 Tonne	Every 20 Tonne or part
B. Bend Strength	IS 1529		-- DO --
MARBLE, MOSAIC / TERRAZO TILES			
1. Transverse Strength	IS 1237	10,000 Tiles	10,000 tiles or part
2. Water absorption	IS 1237	10,000 Tiles	10,000 tiles or part
3. Abrasion test	IS 1237	10,000 Tiles	10,000 tiles or part
VITRIFIED TILES, GLAZED TILES			
1. Water absorption	IS 777	10,000 Nos	10,000 or part
2. Craxing	IS 777	10,000 Nos	10,000 or part
3. Impact	IS 777	10,000 Nos	10,000 or part
FLUSH SHUTTER :			
1. End immersion	IS 2202		
2. Knife			No. of shutters
3. Adhesion		22-65 66-100 101-180 181-300 301-500 501-above	1 2 2 3 4 5

1. Cost of testing and transport will be borne by the contractors.
2. Any other material will be tested by contractors at his own cost as per the instructions and Bank from time to time.
3. Frequency stated above is minimum and the contractor may have to test materials with any frequency as instructed by Architect / Client without any cost.

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17.0 INDIAN STANDARD (IS) CODE

IS - 3764	-	Safety Code for Excavation Work.
IS - 2720	-	Part - II - Determination of Moisture Content Part - VII - Determination of Moisture Content Dry Density Relation using Light Compaction. Part - VIII - Determination of Moisture Content Dry Density Relation using Heavy Compaction. Part -XXVIII- Determination of Dry Density of Soils, in-place, by the Sand Replacement Method. Part - XXIX - Determination of Dry Density of Soils in-place, by the Core Cutter Method.
IS-6313 (Part I)	:	Code of practice for Anti-termite treatment in buildings constructional measures.
IS-6313 (Part II)	:	Code of practice for Anti-termite treatment measure in building (pre-constructional chemical treatment).
IS 269		Specification for Ordinary, rapid-hardening and low heat Portland cement.
IS 455		Specification for Portland Blast Furnace Slag Cement.
IS 1489		Specification for Portland-Pozzolana Cement.
IS 4031		Method of physical tests for hydraulic cement.
IS 650		Specification for Standard Sand for Testing of Cement.
IS 383		Specification for coarse and fine aggregates from natural sources for concrete.
IS 2386		Methods of tests for aggregates for concrete (Parts I to VIII)
IS 516		Method of tests for strength of concrete.
IS 1199		Method of sampling and analysis of concrete.
IS 3025		Methods of sampling and test (physical and chemical) water used in industry.
IS 432		(Parts I & II) Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement.
IS 1139		Specification for hot rolled mild steel and medium tensile steel deformed bars for the concrete reinforcement.
IS 1566		Specification for plain hard drawn steel wire (Part I) fabric for concrete reinforcement.
IS 1785		Specification for plane hard drawn steel wire for prestressed concrete.
IS 1786		Specification for cold twisted steel bars for concrete reinforcement.
IS 2090		Specification for high tensile steel bars used in prestressed concrete.
IS 4990		Specification for plywood for concrete shuttering work.
IS 2645		Specification for integral cement water-proofing compounds.
BS 4461		Cold worked steel bars for the reinforcement of concrete.
IS 10262		Recommended

Equipment

IS 1791	Specification for batch type concrete mixers.
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IS 2438	Specification for roller pan mixer.
IS 2505	Specification for concrete vibrators, immersion type.
IS 2506	Specification for screed board concrete vibrators.
IS 2514	Specification for concrete vibrating tables.
IS 3366	Specification for pan vibrators.
IS 4656	Specification for form vibrators for concrete.
IS 2722	Specification for portable swing weigh batchers for concrete (single and double bucket type.)
IS 2750	Specification for steel scaffoldings.

Codes Of Practice

IS 456	Code of Practice for plain and reinforced concrete.
IS 1343	Code of Practice for prestressed concrete.
IS 3370	(Parts I to IV) Code of Practice for concrete structures for storage of liquids.
IS 3935	Code of Practice for composite construction.
IS 3201	Criteria for design and construction of precast concrete trusses.
IS 2204	Code of Practice for construction of reinforced concrete shell roof.
IS 2210	Criteria for the design of R.C.shell structures and folded plates.
IS 2751	Code of Practice for welding of mild steel bars used for reinforced concrete construction.
IS 2502	Code of Practice for bending and fixing of bars for concrete reinforcement.
IS 3558	Code of Practice for use of immersion vibrators for consolidating concrete.
IS 3414	Code of Practice for design and installation of joints in buildings.
IS 4014	Code of Practice for steel tubular, scaffolding (Parts I & II)
IS 2571	Code of Practice for laying in situ cement concrete flooring.
IS 13920	Code of Practice for ductile detailing of reinforced concrete structures subjected to seismic forces.

Construction Safety

IS 3696	(Parts I & II) Safety Code for scaffolds and ladders.
IS 383	Coarse aggregates for concrete, except as stated above and for other than light weight concrete
IS 4031	Test blocks shall be prepared and tested in accordance with the requirements of IS 4031.

Water	Method of Test (Clause Ref. IS 3025-1964)
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MASONRY

a) RUBBLE MASONRY

IS 1129 (1972)	Stone; Dressing
IS 8348 (1977)	Stone; slabs, stacking and packing for transportation
IS 1805 (1973)	Glossary of terms: quarrying and dressing
IS 1121 (1957)	Compressive, transverse and sheer strength determination
IS 8759 (1977)	Maintenance and preservation of stone
IS 4348 (1973)	Permeability determination
IS 1122 (1957)	Specific gravity and porosity determination

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IS 4121 (1967)	Water transmission rate through natural building stone
IS 1706 (1972)	Wear resistance, determination by abrasion method

Coursed Rubble (First Sort) in Superstructures

IS 1597 (Part I).

BRICKWORK AND BLOCK WORK

IS 1077	Specification for Common Burnt Clay Building Bricks
IS 2116	Specification for Sand for Masonry Mortar
IS 2212	Code of Practice for Preparation and Use of Masonry Mortar
SP 27	Handbook of Method of Measurement for Building Works
IS 432	Specifications for Mild Steel and Medium Tensile Bars
IS 2185	Specification for Cement Concrete Block
IS 2572	Code of practice for Construction of Concrete Walls
IS 9103	Specification for Admixture of Concrete

CONCRETE BLOCK WORK

Hollow or solid concrete blocks shall conform to IS 2185

Mortar for Brickwork and Block work : IS 2250

Sand shall be natural sand in accordance with : IS 383

Workmanship for Brickwork : IS 2212

WALL AND CEILING FINISHES

IS 383	Specification for Coarse and Fine Aggregates
IS 412	Specification for Expanded Metal Sheets for General Purposes
IS 1542	Specification for Sand for Plaster
IS 1635	Code of Practice for Field Slaking of Building Lime and Preparation of Putty
IS 1661	Code of Practice for the Application of Cement and Cement-lime Plaster Finishes
IS 2394	Code of Practice for the Application of Lime Plaster Finish
IS 2402	Code of Practice for External Rendered Finishes
IS 2645	Specification for Integral Cement Waterproofing Compound MATERIALS

Cement shall be ordinary Portland cement conforming to IS 269

Lime shall conform to IS 712.

Sand shall conform to IS 1542

Pigments mixed with cement shall conform to IS 2114.

Integral waterproofing compound shall conform to IS 2645.

Expanded metal backgrounds for plastering and/or rendering shall conform to IS 412.

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IS 427	Specification for distemper – dry colour
IS 428	Specification for distemper – oil emulsion colour
IS 1477	Code of Practice for painting of ferrous metals in buildings – Parts I and II (Pre-treatment and Painting)
IS 2395	Code of Practice for painting concrete, masonry and plaster surfaces
IS 2932	Specification for enamel synthetic exterior undercoating and finishing
IS 2933	Specification for enamel exterior undercoating and finishing
IS 3140	Code of Practice for painting asbestos cement building products
IS 3537	Specification for ready-mixed paint, finishing, interior, for general purposes to IS colours
IS 3631	Specification for ready-mixed paint for finishing interior, alkyd and non-alkyd for general purposes to IS colours
IS 5410	Specification for coloured cement paints
IS 6005	Code of Practice for phosphating iron and steel
IS 6278	Code of Practice for whitewashing and colour washing

Washable oil bound distemper shall conform to IS 428

EXTERNAL SANITARY WORKS

IS 651 – 1992	Specification for Salt Glazed stoneware pipes and fittings (fifth revision).
IS 6924 – 1973	Code of practice for construction of refuse chutes in multistoried buildings
IS 1200 (Part 1)	Method of measurement of building earthwork IS 1200 (Part 16) Method Of measurement of laying of water and sewer lines including appurtenant
IS 1200 (Part 19)	Method of measurement of Water supply, plumbing and drains.
IS 783 – 1959	Code of practice for laying of concrete pipes
IS 13592 –IS 1992	Specification for unplasticized PVC pipes for soil and waste discharge system inside building including ventilation and rainwater.
IS 2527 – 1984	Code of practice for fixing rainwater gutters and down pipes for roof drainage.
IS 458 – 1988	Specification for precast concrete pipes (with or without reinforcement)
IS 782 – 1978	Specification for Caulking Lead.(Third revision)
IS 1172 – 1983	Code of basic requirements for water supply, drainage & sanitation (revised).
IS 1239 – 1990	Specifications for mild steel tube, tubular and other steel pipe (Part I) fittings.
IS 1239 – 1992 (Part II)	Specifications for mild steel tube, tubular and other steel pipe fittings.
IS 1726 – 1991	Code for cast iron manhole frame and cover (third revision).
IS 1742 – 1983	Code of practice for building drainage.(Second revision)
IS 2065 – 1983	Code of practice for water supply to buildings.
IS 3114 – 1985	Code of practice for Laying of CI pipes
IS 4111 – 1986	Code of practice for Ancillary structures in sewerage system
IS 1536 – 1976	Specification for centrifugally cast (spun) iron pressure pipes for water, gas and sewage.
IS 1537 – 1976	Specification for vertically cast iron pressure pipes for water, gas and sewage.

BOQ FOR PROPOSED CONSTRUCTION OF FIRE ESCAPE STAIRCASE AT SBI IAD BUILDING.

S.NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
I	CIVIL WORKS				
1	SITE CLEARING				
1.1	Site Clearing: Cleaning and grubbing for removal of rank, vegetation, shrubs, trees, bushes, stumps, weeds, grass including roots, debris, unusable materials, removal of 150mm thick top soil using manual or mechanical method and disposal of the same by burning or any other means including dumping to approved areas within the project site, stacking usable materials at places shown with all leads and lifts, cost of all labour, hire and fuel charges for all tools and plants employed and all other incidental charges etc., all complete and as directed. The rate shall be inclusive of all the necessary material, required hardware, labour, transportation, Grinding, finishing edges, etc necessary for the complete execution of the item.	SQ.M	133.00		
1.2	Dismantlaing the Existing brickwork, Doors, Windows, Lintels and rcc chajjas any other item as directed and removing and Carting away debris form the site to the contractors own dump yard or Municipal Dumpyard atleast 10 km away form the site. The rate shall include all the labour transportation etc for the complete item of work. The rate shall be inclusive of all the necessary material, required hardware, labour, transportation, Grinding, finishing edges, etc necessary for the complete execution of the item.	CU.M	20.00		
2	EARTH WORK				
2.1	Earthwork Excavation in all kinds of soil, manually or by mechanical means, for Column Footings, foundation of walls, raft foundations, plinth beams, steps, Under ground water sump, Under ground septic tank, cess pits, etc., in all types of soil including soft or hard moorum, boulders (upto 0.10 cum) shoring the sides wherever necessary, bailing/pumping out sub-soil water and rain water with pumps and keeping the foundation trenches and pits dry including filling back the trenches by good selected and approved quality excavated earth in layers not exceeding 20 cm., watered and consolidated, spreading surplus excavated earth within plot and carting away surplus	CU.M	43.00		

	materials out of site, all complete as directed. Rate to include necessary cost towards transportation of remaining material rendered surplus out side the Bank's premises/site and disposing the same to approved municipal yard with all lead and lift including labour for loading, unloading surplus excavated earth complete as directed by the Bank.				
2.2	EARTH FILLING WITH BROUGHT OUT EARTH : Filling with approved good quality selected hard murrum brought from outside (at contractor's cost) and filling the same in Foundations, plinth, plinth beam trenches etc. including removing debris, organic matter, etc if any and spreading in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming (mechanically or manually), watering, dressing, de-watering if required, to keep site dry while back filling all complete as per specifications and instructions of Architect / Bank's Engineer. The rates includes transportation of materials, taking permission of local authorities if required and paying royalty etc. complete as per the direction of Architect / Bank's Engineer. The rate shall be inclusive of all the material ,labour, hardware, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer.	CU.M	21.00		
3	PCC-WORKS (PCC: Volumetric Machine Mix)				
3.1	Providing and laying in position machine mix PCC (plain cement concrete) under foundation, plinth protection, grade slabs, coping, sill concrete etc. including transporting, laying, compacting, finishing the surface in line, level and plumb as per requirement and curing etc. complete. The Rate to include necessary formwork, centering, shuttering, complete in all respects and execution of work at all heights and location with required leads and lifts complete as directed by Architect / Bank's Engineer. Approved make for Cement : ULTRATECH, ACC, RAMCO, INDIA, AMBUJA				
A	PCC 1:4:8 using 40 mm and downgrade metal For Column footings, Below Plinth beams, Entrance steps & Under Staircase.	CU.M	21.00		
4	RCC WORKS				

4.1	<p>Reinforced Cement Concrete M 25 GRADE MIX 1: 1: 2 to the required strength as per SS and IS-456:2000 using 20mm size hard granite machine crushed graded metal (Coarse aggregate) and sand from approved quarry, and placing necessary reinforcement in position including cost and conveyance of all materials like cement, Sand, coarse aggregate, and water to work site, seigniorage charges on all materials, including shuttering and MS scaffolding with steel props and steel plate as per the approved shuttering plan and other accessories as per norms and stability calculations, all taxes and all operational, incidental, labour charges, mixing concrete, laying and lift charges, vibrating, curing etc., complete for finished item of work as per standard specification but excluding cost of steel reinforcement and its fabrication charges etc., complete for finished item of work as directed by the department/Architect. NOTE: The concrete shall attain the strength of 250 N/MM2 in 28 Days</p>				
A	FOOTINGS	CU.M	10.50		
B	PLINTH BEAMS	CU.M	8.00		
C	COLUMNS	CU.M	10.00		
D	ROOF BEAMS	CU.M	18.00		
E	SLABS	CU.M	27.00		
F	STAIR CASE WAIST SLAB and STAIR CASE STEPS (triangular portion above waist slab)	CU.M	42.00		
5	BRICK WORK				
5.1	<p>Providing and constructing 230mm thick Brick masonry walls in Super structure using Tested Quality locally available approved quality Class designation 50 Bricks, well (Kiln/Chimney) burnt, uniform size and colour having average crushing strength not less than 50 kg/cm2 in CM 1:5 in External walls and Internal walls, shaft walls, parapets, Head rooms etc. in proper line, level and plumb including striking out / raking out joints, curing, necessary scaffolding, etc. complete at all heights and levels as per the approved drawing and as per instructions of the Architect / Bank's Engineer. The rate shall be inclusive of all the material ,labour, hardware, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer.</p>	CU.M	37.00		
6	FINISHING				

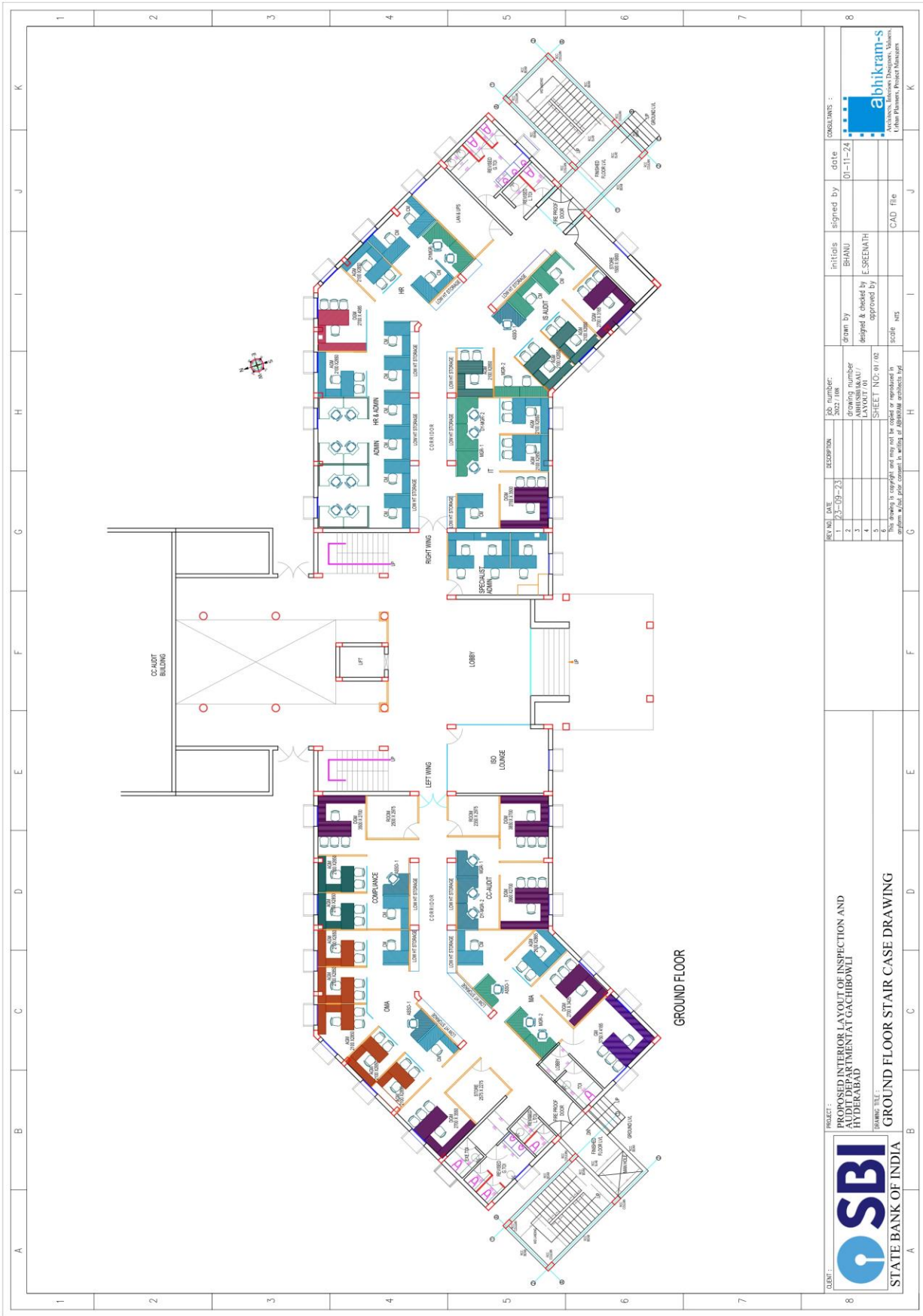
	Providing and laying in position external Cement Plaster, average 20 mm thk, in two coats, at all heights with first coat of 16 mm thk in Cement Mortar 1:5 using natural silt free fine sand, and second coat of 4 mm thickness in C.M. 1:4, including necessary staggging, scaffolding, curing, roughening the first coat to receive second coat of plaster etc, providing approved water proofing compound @1 kg per bag of cement or as specified by the manufacturer and adding polyproplyne fiber of approved make as per manufacturers specifications to prevent shrinkage cracks, complete as directed by the Architect / Bank's Engineer. The rate shall be inclusive of all the material ,labour, hardware, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer. Approved make for Cement : ULTRATECH, ACC, RAMCO, INDIA,AMBUJA	SQ.M	264.00		
7	FLOORING				
	Providing and laying in position 18mm ± 2mm thick machine cut Granite stone flooring flame leather finish and				
	skirting in approved colour, shade, design and patterns as per architectural drawings laid over 20 mm (average)thick cement mortar 1:6 (1 cement : 6 coarse sand) bedding fixed and jointed with neat cement slurry and filling joints using white cement slurry admixed with pigment of matching shade or epoxy based joint filling compound of approved make including grinding, mirror polishing, curing, nosing, making grooves etc. complete as specified in the Architectural drawings and as directed by the Engineer-in-Charge basic rate of granite				
	In Staircase steps and risers, in single piece slabs of required size, with full round moulded mirror polished edges complete as per Architectural drawing and as directed by the Engineer-in-charge.	SQ.M	145.50		
8	FIRE RETARDANT DOOR WITH 120MIN RATING WITH PANIC BAR	SQ.M	27.00		
	Supply & Installation of MS Flush Fire Doors of 2Hrs Fire rating tested as in accordance with IS-3614 Part-II, BS-476 Part-22 etc complete as per instructions of Engineer-In-Charge/Manufacturers specifications/drawings.				
	(A) Frame: Door Frame shall be Double rebate profile of 154x77mm of 120minutes fire rating manufactured from16swg Mild Steel, plastic coated profile to have bending radius of 1.4mm of approved make supplied in assembled form ready to install at site. The Frame shall be fixed to the concrete with metallic fasteners of 125mm length x 10mm dia minimum 4-Nos on each face etc				



	complete as per instructions of Engineer-In-Charge / Manufacturers specification,				
	(B) Shutter: Door shutter of 46mm thick of 120 minutes fire rating approved make fabricated with 2-nos. 1.2mm/18swg thick Mild steel sheets in mirror finish, with infill of fire rated proprietary Insulation and non-combustible core bonded to both faces of sheet with lock seam joints at stile edges and internal reinforcement at top, bottom and stile edges for fire rating, structural rigidity & sound insulation. Cost includes all Hardware, fixtures of approved make Mortise Latch & Lock, SS double Ball Bearing Hinges 125x89x3mm thick (minimum 5-nos. per leaf), 6mm thick clear glass vision panels of size 300 x 600mm as per drawing, FR Sealant, SS Beading along with SS Screws etc complete.				
	Note : The supplier must submit a manufacturer's certificate				
9	STEEL				
	Supplying and fixing in position Tested Quality Fe500D grade TMT Steel reinforcement bars conforming to IS: 1786-2008 of any dia. for R.C.C. work at all levels as per details structural drawings including straightening, cutting, bending, placing in position and binding with two strands of annealed steel wire 0.9 to 1.6 mm thickness, twisted tight at every intersection of bars including necessary overlapping / Welding /providing sockets at joints as required complete, at all levels in complying with standard specifications and as per direction of Architect / Bank's Engineer. Mode of measurements : Length of reinforcement bars shall be actually measured (No separate measurements for Laps, Chairs,(after checking of reinforcement by structural engineer any suggestions to introduce the chairs wherever it is required) Etc) at site and its weight will be calculated considering prescribed "weight per meter" for respective dia. bars as per relevant IS code irrespective of actual weight. No rolling margins and wastage will unadmissible for the purpose. Approved Makes : SAIL / TATA / VIZAG.	MT	14.50		
10	LOCKSET				
10.1	Providing and fixing reinforcement steel upto 12mm dia., including drilling of holes and fixing the rod using lockset compound as detailed in drawing and as directed.	Nos	90		
10.2	Providing and fixing reinforcement steel 16 & 20mm dia., including drilling of holes and fixing the rod using lockset compound as detailed in drawing and as directed.	Nos	50		

11	PVC PIPE				
	Providing 110mm dia P.V.C rainwater down take pipes having wall thickness not less than 1.6mm and confirming to IS 4985, including cost of necessary P.V.C. Bends, shoes, iron clamps and all other accessories and fixing in position including cost and conveyance of all materials to site and labour charges for fixing at site etc., complete.	R.M	40		
12	MS RAILING				
	Providing, fabrication and installation in position MS railing in staircase including cutting to required shape and size, welding joints, installation of base anchor plates of appropriate size with required numbers of expansion bolts of required size, providing required size bends, finishing weld joints to produce smooth surface made of 25x25x2 mm MS square pipe baluster @ 100mm c/c, 38x38x2 mm MS square pipe baluster @ 1050mm c/c, guard rail made of 50x25mmx2 MS rec pipe, 38x38x2 mm square pipe at the bottom rail and 2 layers of 2mm thick 40mm dia. MS pipe Hand rail and 32x4mm flat bar at an interval of 1050mm c/c, all complete as per drawings, specification and instruction of the Architect. The rate to include applying a priming coat of approved steel primer with two 2 or more coat of synthetic enamel paint. The rate shall be inclusive of all the material, labour, hardware, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer.	RM.T	30.00		
13	EXTERIOR PAINT				
	Providing and applying the APEX weather proof exterior emulsion(water based 100% acrylic) paint to Compound wall. The surface to be painted shall be made free from any loose paint, dust, grease and any fungus, algae or moss, on it shall got be removed thoroughly by vigorous wire brushing and cleaning with water. Then one coat of exterior grade wall primer be applied after which any surface imperfection such as holes, dents, fine cracks shall be corrected by filling with external wall putty. Thereafter second coat of exterior grade wall primer and again surface imperfection to be corrected. Thereafter Apex weatherproof exterior emulsion paint to be applied in two coats. All materials shall be of Asian/ British/ Nerolac make. The color and pattern/ color combination of the paint shall be got approved from Architect. . The stock of the quantity for all material as manufacturer's theoretical consumption (per unit of actual wall surface area) shall be made available at site before commencement of the painting work. The rate includes cost of all materials,	SQ.M	264.00		

	labour, scaffolding, ladders charges, storing & safeguarding the labour in all heights (all external walls, compound walls etc.) contractor has to provide all precautions and arrange safety belts, helmets to all working labours at site.				
II	SANITARY WORKS				
1	INSPECTION CHAMBERS				
	<p>Inspection Chamber / Manhole</p> <p>I Designing and constructing Inspection Chamber of varying depth and sizes, details as under:</p> <p>a. P.C.C. bed in cement concrete 1:3:6.,b. R.C.C. for Foundation Slab of average 100 mm thick in cement concrete cement concrete 1:1½:3 mix with bottom reinforcement 8ø @ 200 c/c both way, alternate bent-up.,</p> <p>c. Brick Masonry 230 mm thick with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in CM 1:4. d. RCC Top Slab 150 mm thick in cement concrete 1:1½:3 mix and top & bottom reinforcement 8ø @ 150 c/c both way including embedding with frame for manhole. e. Plastering inside and outside of average 12 mm thickness with cement mortar 1:3 with a floating coat of neat cement on inside face including proper water proofing to ensure no ground water seepage in the manhole. f. Providing & fixing PVC coated M.S. foot rests of 20mm ø at 300 mm spacing, benching and making channels with 1:2:4 cement concrete neatly finished. g. The rate also includes excavation (mechanically / manually) in all kind of soil up to required depth, dewatering, necessary centering & shuttering, curing, backfilling earth in exposed side, watering ramming and removing the surplus excavated material and making good the same complete as required</p>				
	a Chamber size 450 X 900 mm (inside)				
	ii Up to 600 mm depth Nos. 11000	SQ.M	4.00		
2	SWG PIPES				
	<p>Supplying, laying, jointing and testing (WITH ALL JOINTING COLLARS, BENDS T-PIPES ETC) of SWG pipes of ISI make conforming to ISI 651 & 4127 with airtight cement joints in CM (1.5:1) prop. Including excavation of trenches and socket pits in all soil (except rock requiring blasting) and refilling with watering and tamping etc to the required slope including cost and conveyance of all materials to site and all labour charges,</p>				

	all taxes on all materials etc., for finished item of work				
A	200 mm dia upto 5' depth	NOS	30.00		
B	150 mm dia upto 5' depth	NOS	25.00		
C	100 mm dia upto 3' depth	NOS	25.00		
3	FRP Manhole Cover with Frame				
	Providing and Fixing FRP Manhole Cover with Frame tested as per BS EN 124:1994 and AASHTO H-20 and H-25 Heavy duty of size 450 x 900 mm internal size with load	NOS	4.00		
	bearing capacity up to 2.5 tones				
III	BUY BACK ITEM (minus for the Final total)				
1	Dismantling,(brick work, all RCC works) removing, Cutting and buying back of existing cast iron spiral stair case. The rate shall be inclusive of all the material ,labour, hardware, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer. Approx Each no 25'-0" ht. Note : Minimum buyback for Staircase - Rs.15,000.00/- *	NOS	-2.00		
	TOTAL RUPPES				
	DISCOUNT IF ANY				
	GRAND TOTAL				
	NOTE : GST EXTRA AS APPLICABLE				

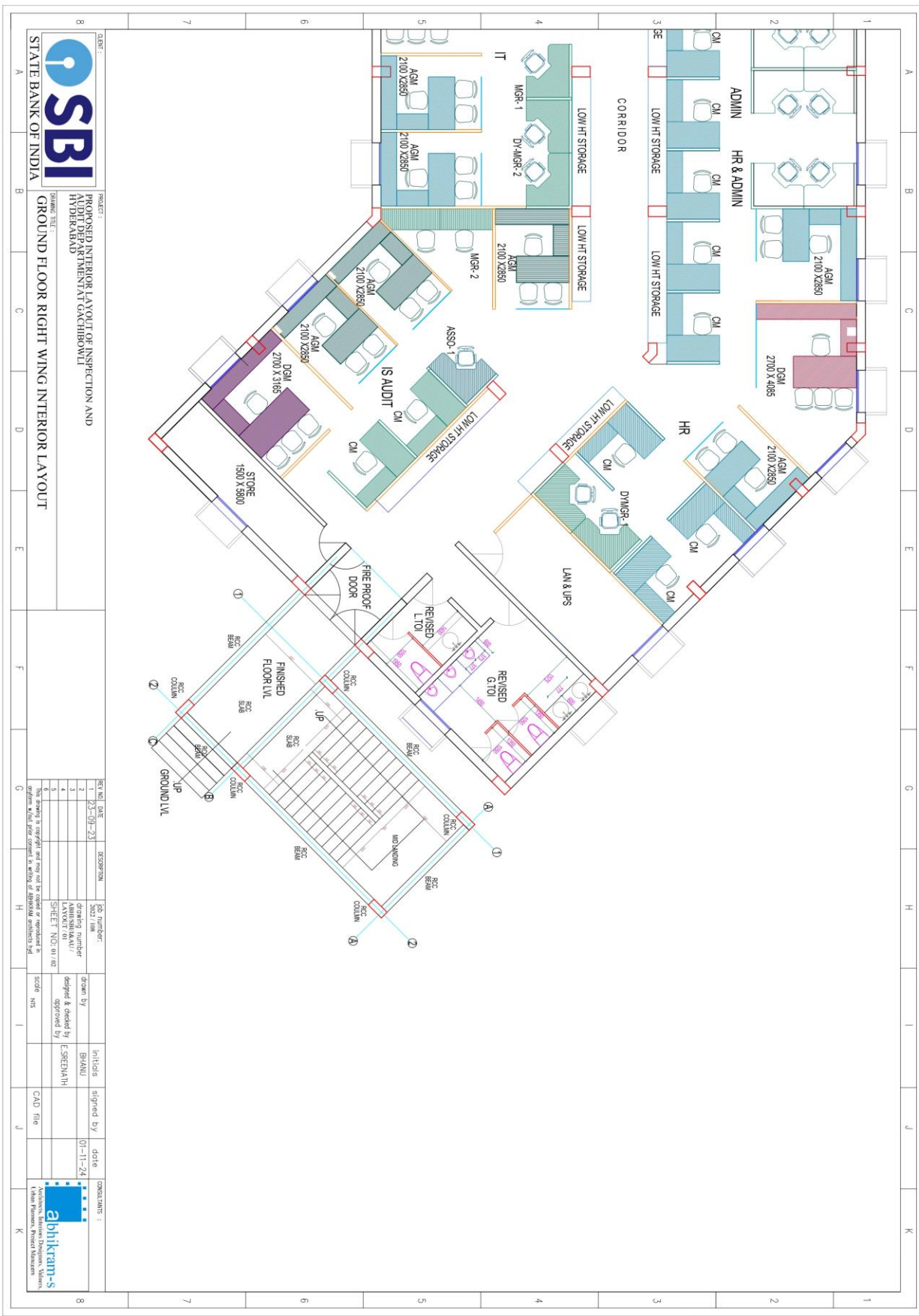


CLIENT :  STATE BANK OF INDIA	PROJECT : PROPOSED INTERIOR LAYOUT OF INSPECTION AND AUDIT BUILDING AT HYDERABAD		CONSULTANTS :  Abhikram-s Architects, Interior Designers, Values, Urban Planners, Project Managers																			
	DRAWING TITLE : GROUND FLOOR STAIR CASE DRAWING		Job Number: 2022.108	Initiated by BHANU																		
			drawing number LAYOUT 10	designed & checked by E.REENATH	signed by [Signature]																	
			SHEET NO. of set 01 of 02	approved by [Signature]	date 01-11-24																	
			scale NTS	CAD file [File Name]																		
REVISIONS: <table border="1"> <thead> <tr> <th>REV. NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>22-09-23</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> </tr> </tbody> </table> <p>The drawing is copyright and may not be copied or reproduced in any form without prior consent in writing of ABHIKRAM architects Pvt</p>					REV. NO.	DATE	DESCRIPTION	1	22-09-23		2			3			4			5		
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1	22-09-23																					
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Client

Architect

Contractor
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PROJECT :
**PROPOSED INTERIOR LAYOUT OF INSPECTION AND
 AUDIT DEPARTMENT AT CACHIBOWLI
 HYDERABAD**
 DRAWING TITLE :
GROUND FLOOR RIGHT WING INTERIOR LAYOUT

REV. NO.	DATE	DESCRIPTION	SB. NUMBER	DRAWN BY	INITIALS	SIGNED BY	DATE	REVISIONS :
1	23-09-23		Sheet 188	BHAAU			01-11-24	
2								
3								
4								
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6								

6. This drawing is not to be used for any other project or construction without the written consent of the architect.

Scale: NTS

CAD file

abhitram's
 ARCHITECTS & INTERIORS
 1/14th Floor, Preeti Meadows

Client

Architect

Contractor
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GROUND FLOOR

CLIENT : 	PROJECT : PROPOSED INTERIOR LAYOUT OF INSPECTION AND AUDIT OFFICE AT GACHIBOWLI HYDERABAD		JOB NUMBER : 2022/108		CONSULTANTS : Architects, Interiors Designers, Valuers, Urban Planners, Project Managers	
	DRAWING TITLE : GROUND FLOOR LEFT WING INTERIOR LAYOUT		drawing number : LAYOUT/101		designed & checked by : E. GREENATH	
			REVISED : 1. 2022-09-23 2. 2022-09-23 3. 2022-09-23 4. 2022-09-23 5. 2022-09-23		scale : NTS	
			REVISIONS : 1. 2022-09-23 2. 2022-09-23 3. 2022-09-23 4. 2022-09-23 5. 2022-09-23		approved by : [Signature]	
			DATE : 2022-09-23		CAD File	

Client

Architect

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