

NIT NO	AMA20240501
DATE	06.05.2024



STATE BANK OF INDIA

AMARAVATI LOCAL HEAD OFFICE

NOTICE INVITING TENDER (NIT)

IN A SINGLE BID THROUGH E-TENDERING PROCESS.

FOR

COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING)
FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD, VIZIANAGARAM, A.P

(Composite contractors who are empanelled with SBI-LHO, Amaravati circle 25 lacs & above category are only eligible to participate)

Last date for submission of E Tender: 3.00 P.M. (IST) on 27-05-2024

Opening of E Tenders: 3.30 P.M. (IST) on 27-05-2024

The Asst. General Manager (P&E),
State Bank of India, P&E Dept.,
LHO Amaravati, 2nd floor,
Gunfoundry, Abids,
Hyderabad-500001
Ph: 040-23387503, 297

CONSULTANTS:

M/S ARCHITECTS CHAMBER
The Livingstone, AIIMS Nagar, Lane-6, Patrapada, Bhubaneswar-751019
Ph. No. – 9090952782 / 0674-2472849
Email:architectschamber@gmail.com

NOTICE INVITING TENDER (NIT)

NAME OF WORK: COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD, VIZIANAGARAM, A.P

Online E-Tenders are invited from empanelled Interior contractors of SBI Amaravati Circle under the category of ₹ 25.00 Lakhs and above for Composite work contractors shall have to furnish proof of empanelment and its validity)

1	Name of the work	e-TENDER NOTICE FOR COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD, VIZIANAGARAM, A.P
2	Pre – bid Meeting	on 15-05-2024 @ 11.00 AM At the Address: State Bank of India, P&E Dept., 2 nd Floor, SBI Amaravati LHO Building, Gunfoundry, Abids, Hyderabad – 500 001 Ph: 040-23387503,297
3	Date and Time where tender forms are available (From _____ to _____)	From 06-05-2024 to 27-05-2024 For information: Refer Bank's web site www.sbi.co.in under "procurement news ". To apply refer https://etender.sbi/
4	Time and last date of submission of online e-Tender	Up to 3.00PM on 27-05-2024
5	Place, Time & Address for submission of e tender/contact person /telephone no/email address.	Up to 3.00 p.m. on 27-05-2024 A) Tender documents at https://etender.sbi/ B) EMD at the Address: State Bank of India, P&E Dept., 2 nd Floor, SBI Amaravati LHO Building, Gunfoundry, Abids, Hyderabad – 500 001 Ph: 040-23387503, 297 e- mail id : agmpe.lhoand@sbi.co.in
6	Date, Time and Place of opening of eTenders (Representatives of Bidder may be present during opening of Bids. However, Bids would be opened even in the absence of any or all the bidder's representatives)	On 27-05-2024 4:00PM State Bank of India, P&E Dept., 2 nd Floor, SBI Amaravati LHO Building, Gunfoundry, Abids, Hyderabad – 500 001 Ph: 040-23387503, 297 e- mail id : agmpe.lhoand@sbi.co.in
7	Earnest Money Deposit (EMD).	Demand Draft for ₹ 17590 /- in favor of Premises and Estate Department EMD, FSD account payable at Hyderabad to be submitted. (Physical copy of EMD should reach before due date and time.) 'or' Valid MSME certificate issued for the purpose of proposed works and Bid security declaration in the format enclosed duly stamped and signed

8	Initial security Deposit	2% of the total Contract value (including EMD). To be submitted by the successful bidder before commencement of the work.
9	Retention Money	<ol style="list-style-type: none"> 1. Deductible in running bills @ 10% of the value of work. 2. Total deductible in running bills is 5% of value of work including EMD, ISD. 3. A retention Money of 2.5 % of the final bill amount shall be retained till completion of the defect liability period.
9	Estimated cost	Rs. 17.59 LAKHS
10	Terms of payment of Bills, if any (specify the minimum value of work for payment of running account bills)	<ol style="list-style-type: none"> 1) Minimum value of completed work for Running Bills is Rs.7.00 LAKHS 2) No Advance will be paid.
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	Stipulated time for completion of the work/supply.	45 DAYS.
13	Defects Liability Period	12 Months from the date of handing over
14	Validity period of the tender.	90 days from last date for receipt of tender
15	Eligible Taxes	<p>TDS will be deducted at source as per Govt. Guidelines. Reimbursement of GST will be made only on submission of proper GST invoice as per applicable GST provisions/Rules. The contractor should comply with the following;</p> <ul style="list-style-type: none"> • Contractor should have GST Registration Number. • Contractor should submit proper GST Invoice • Invoice should specifically/separately disclose the amount of GST levied at applicable rate as per GST provisions/Rules. • In case of Correction in the bills after scrutiny, contractor should submit fresh bills for payment. • 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. • The GST Number of State Bank of India is for Hyderabad state - 36AAACS8577K1ZQ
16	Electronic Payment	Electronic payment shall be preferred. All the contractor must furnish details such as 1) Name of the their bank 2) Name of their branch 3) Account number 4) Name of the account holder as in the bank account 5) IFSC No of the branch 6) PAN number.
17	Agency for arranging e-tender/online bidding	<p>M/s. e-procurement Technologies limited, Ahmedabad. Primary Contact Numbers:- M:- 9081000427, 9904407997 1. Sujith Nair:- 079-68136857, sujith@eptl.in 2. J Nandan Valera:- 079-68136843, nandan.v@eptl.in aymeet Rathod:- 079-68136829, jaymeet.rathod@eptl.in 3. Vinayak Khambe:- 079-68136835, vinayak.k@eptl.in 4. Nadeem Mansuri:- 079-68136853, adeem@eptl.in</p>

		<p>5. Hemangi Patel:- 079-68136852, hemangi@eptl.in 6. Kanchan Kumari:- 079-68136820, kanchan.k@eptl.in 7. Deepak Narekar:- 079-68136863, deepak@eptl.in 8. Anshul Juneja:- 079-68136840, anshul.juneja@eptl.in 9. Salina Motani:- 079-68136831, salina.motani@eptl.in 10. Devang Patel:- 079-68136859, devang@eptl.in</p> <p>You are requested to contact the agency for further guidance on E-Tendering</p>
18	Any additional Information	<p>The quoted rate should be inclusive of cost of materials, labour, wages, transportation, wastage, temporary preparation works, cleaning, statutory expenses, incidental charges and all related expenses to complete the work. GST shall be paid on actuals.</p> <p>After completion of work, the photos of the completed project with different angles shall be attached along with the Bill. Also, it is necessary to attach the photos of old ambience and the same to be attached along the Bill. The photos may be titled before and after. The debris shall be cleared then and there in co-ordination of other traders. If site is not clear periodically, Bank shall arrange to clear the site at the risk and cost of Contractor. The successful L1 Contractors has to furnish the list of workers with name, address, Aadhar No. etc. and get the permission at centre / Branch.</p> <p>During defects liability period it is the responsibility of contractor to send the people to rectify or replace the material.</p> <p>In case of working Branch with busy schedule and work shall be carried out without disturbing the branch functioning. All contractors are advised to visit the Premises before quoting.</p>
19	Bidder Contact Details.	<p>Bidder to provide following information.</p> <ol style="list-style-type: none"> 1) Name of Company. 2) Contact Person. 3) Mailing address with Pin Code. 4) Telephone number and Fax number. 5) Mobile Number and E-MAIL.

The D.D./ B.C. of E.M.D. shall be submitted/sent (otherwise the tender shall be summarily rejected) at the above-mentioned address.

The contractor has to provide their E-mail id, contact nos. and postal address in the bid documents. Henceforth, all official communication from Bank/SBI shall be through E-mail and SMS also.

The SBI reserves the right to cancel or postpone or modify the tenders at any stage without assigning any reason.

The Asst. General Manager

INSTRUCTIONS TO TENDERERS.

1.0 Scope of Work

Sealed Tenders are invited from empanelled Interior contractors of SBI Amaravati Circle under the category of ₹ 25.00 Lakhs and above **“COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD, VIZIANAGARAM, A.P.”**

1.1 Site and Its Location

The proposed work is to be carried out at **SBILD VIZIANAGARAM, VIZIANAGARAM, ANDHRA PRADESH**

1.2 Clients/Architects reserve to itself the right to accept or reject any tender without assigning any reason for doing so and do not bind itself to accept the lowest or any other tender.

1.3 General Specifications are for guidance only. The latest ISI codes and Specifications and mode of measurements will be referred to during execution.

1.4 The term "THE ARCHITECTS" in the said conditions shall mean **M/S ARCHITECTS CHAMBER, The Livingstone, AIIMS Nagar, Lane-6, Patrapada, Bhubaneswar-751019, Ph.No-9090952782 / 06742472849, Email:architectschamber@gmail.com.**

1.5 Employer or Client shall mean SBI.

1.6 Tenders are to be quoted electronically in <https://etender.sbi/>. For details refer NIT.

2.0 Tender Documents

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

- Instructions to tenderers
- General Conditions of Contract
- Special Conditions of Contract
- Additional Conditions for Electrical Installation
- Technical Specifications
- Drawings
- Priced Bid and Estimated BOQ

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

- Price Bid and Estimated BOQ
- Technical Specifications
- Additional Conditions for Electrical Installation
- Special Conditions of Contract
- General Conditions of Contract
- Instructions to Tenderers

2.3 Complete set of tender documents including relative drawings can be downloaded from <https://etender.sbi/> during the period mentioned in the NIT.

2.4 The tender documents are not transferable.

3.0 Site Visit

3.1 The tenderer must obtain himself on his own responsibility and his own expenses all information and data which may be required for the purpose of filling this tender document and enter into a contract for the satisfactory performance of the work. The Tenderer is requested satisfy himself regarding the availability of water, power, transport and communication facilities, the character quality and quantity of the materials, labour, the law and order situation, climatic conditions local authorities requirement, traffic regulations etc; The tenderer will be fully responsible for considering the financial effect of any or all the factors while submitting his tender.

4.0 Earnest Money

4.1 The tenderers are requested to submit the Earnest Money as mentioned in NIT in the form of Demand Draft or Banker's Cheque drawn on any Bank in India.

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

4.3 No interest will be paid on the EMD.

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

4.5 EMD of successful tenderer will be returned on submission of ISD.

5.0 Initial Security Deposit

The successful tenderer will have to submit a sum equivalent to 2% of contract value by means of D/D drawn in favour of State Bank of India within a period of 15 days of acceptance of tender.

6.0 Security Deposit

6.1 Total security deposit shall be 5% of contract value. Out of this 2% of contract value is in the form of initial security deposit. Balance 3% shall be deducted from the running account bill of the work at the rate of 10% of the respective running account bill i.e., deduction from each running bill account will be 10% till total 5% of contract value is reached. 50% of the total security shall be paid to the contractors on the basis of architect's certifying the virtual completion. The balance 50% would be paid to the contractors after the defects liability period as specified in the contract.

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

7.0 Signing of Contract Documents

The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract attached herewith within 15 days from the receipt of intimation of acceptance of his tender by the Bank. However, the written acceptance of the tender by the Bank will constitute a binding agreement between the Bank and successful tenderer whether such formal agreement is subsequently entered into or not.

8.0 Completion Period

As mentioned in NIT

9.0 Validity of Tender

Tenders shall remain valid and open for acceptance for a period of 3 (Three) months from the date of opening price bid. If the tenderer withdraws his/her offer during the validity period or makes modifications in his / her original offer which are not acceptance to the Bank without prejudice to any other right or remedy the Bank shall be at liberty to forfeit the EMD.

10.0 Liquidated Damages

The liquidated damages shall be 0.5% per week subject to a maximum of 5% of contract value.

11.4 The process of online re-bidding amongst two or more contractors offering same rates shall continue till L1 bidder is discovered.

11.5 In case, any of such contractors(quoted same tender amount during initial bidding or subsequent re bidding) refuses to submit revised offer, it shall be treated as 'withdrawal of tender' by the contractor before acceptance. The EMD of such contractors shall be forfeited.

1. TENDER FORM

PROJECT: COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLCOK AT SBILD,VIZIANAGARAM, A.P

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 ARCHITECTS CHAMBER, The Livingstone, AIMS Nagar , Lane - 6,Patrapada,Bhubaneswar-751019Ph.No-9090952782 /06742472849,Email:architectschamber@gmail.com.**

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. **17.59 LAKHS**

I/We are depositing as Earnest Money a sum of **Rs. 17,590.00 /-** (Rupees Seventeen Thousand Five Hundred Ninety Only) in favor of **Asst General Manager (P&E), SBI, LHO Amaravati 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 the time mentioned in NIT 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:

Signature of the Contractor

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2. NOTICE TO CONTRACTOR

ADDRESS:

PROJECT: COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLCOK AT SBILD, VIZIANAGARAM, A.P

Dear Sirs,

1. On behalf of SBI we have pleasure in inviting tender for the aforesaid work.
2. **The scope of work broadly as given below is for COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD, VIZIANAGARAM, A.P**
3. **Tender Documents should be filled and uploaded/quoted on the site of <https://etender.sbi/>**
4. 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 shall be valid for a period of 120 days from the date of opening.
7. TOTAL SECURITY DEPOSIT: shall comprise of:
 - a. Earnest Money deposit
 - b. Initial Security deposit
 - c. Retention money
- 7.1 The intending tenderer shall deposit EMD amount as mentioned in NIT by Demand Draft 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.
- 7.2 **The successful tenderer will have to pay further sum equivalent to 2% of his contract value, less EMD already paid, as initial Security Deposit (ISD) by means of a D.D./Banker's cheque in favor of Asst General Manager (P&E), SBI, LHO Amaravati, payable at Hyderabad 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.**
- 7.3 Together with the money paid 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

Signature of the Contractor

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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.

8. Within 7 Days 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.
9. 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.
10. 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.
11. Time is the essence of the contract. The work should be completed **within the time mentioned in NIT** from the date of commencement. The date of commencement shall be within ONE day 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

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

12. 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 0.5% 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).
13. 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.
14. 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.
15. SBI, 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.
16. No employee of the bank or SBI is allowed to work as a contractor for a period of two years of his retirement from service, without the previous permission of the bank or SBI. This contract is liable to be cancelled, if either the contractor or any of his employees is found at any time to be such a person who had

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

17. The tenderer, apart from being a competent contractor must associate himself with agencies of the appropriate class who are eligible to tender for (1) Electrical (2) Air-conditioning works (3) Fire fighting systems & (4) Interiors (fixed furniture), as the case maybe.

ARCHITECTS:

**M/S ARCHITECTS CHAMBER
The Livingstone, AIIMS Nagar, Lane-6
Patrapada, Bhubaneswar-751019
Ph.No.-9090952782/0674-2472849
Email:architectschamber@gmail.com**

3. 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 "**COMPOSITE WORKS (INTERIOR FURNISHING,
ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION FOR CANTEEN BLOCK AT
SBILD,VIZIANAGARAM, A.P.**" executed and has caused drawings, conditions of contract, specifications and
schedule of quantities etc., describing the works prepared by **M/S ARCHITECTS CHAMBER, The Livingstone,
AIIMS Nagar ,Lane -6,Patrapada,Bhubaneswar-751019,Ph.No-9090952782
/06742472849,Email:arhitectschamber@gmail.com.** 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 contract amount to be paid at the times and manner set forth in the said conditions the contractor shall upon and subjected to the said conditions and complete the work shown upon the said drawings and described in the specifications and schedule of quantities.
2. The employer will be pay the contractor a sum of RS. _____ (Rupees _____) herein after referred to as the contract sum or such other sum as shall become payable at the times and in the manner specified in the said conditions.
3. The term 'THE ARCHITECTS ' in the said conditions shall mean the said "**M/S ARCHITECTS CHAMBER,The Livingstone, AIIMS Nagar ,Lane -6,Patrapada,Bhubaneswar-751019**.which expression shall include successors and assignees or in the event their ceasing to be the Architects for the purpose of this contract for what ever reason such other person or persons as shall be nominated for that purpose by the employer, provided always that no person or persons subsequently appointed to be the architects under this contract shall be entitled to disregard or overrule any previous decisions or approval or directions given or expressed in writing by the Architects for time being.
4. The said conditions and appendix thereto shall be read and construed as forming part of this agreement and parties hereto shall respectively abide by, subject to themselves to the said conditions and perform agreements on their part respectively in the said conditions contained.
5. The following documents shall be deemed to form and read and construed as part of this agreement:
 - a) Notice Inviting Tenders. (NIT)
 - b) Tender Form.
 - c) Special Conditions of Contract.
 - d) General Specifications.
 - e) Drawings.
 - f) Employers letter of intent no. _____.
 - g) Contractor's letter of acceptance.

6. This contract is neither a fixed lump sum contract nor a piece work contract but a contract to carry out the work in respect of the entire building to be paid for according to actual measured quantities at the rates contained in schedule of quantities in the said conditions.
7. The Employer reserves to himself the right of altering the drawings and nature of work by adding or omitting any items of work having portions of the same carried out through the other agencies without prejudice to this contract.
8. The time shall be considered as essence of this contract and the contractor hereby agrees to commence the work from the _____ (which shall be considered as the date of commencement of the work) and to complete the entire work within 45 DAYS from the date of commencement. The work shall throughout the stipulated period of contract, be proceeded with all due diligence and if the contractor fails to complete the work within the specified period, he shall be liable to pay compensation as provided in clause 7 of the special conditions of contract.
9. That the several conditions of this contract have been read to & fully understood by us.

As witness our hands, this _____ day of _____ 2024 in the presence of :

AS WITNESS our hand this _____ day of _____ 2022

Signed by the said in the presence of:

WITNESS : SIGNATURE

NAME :

ADDRESS : EMPLOYER

WITNESS : SIGNATURE

NAME :

ADDRESS :

4. APPENDIX TO GENERAL CONDITIONS OF CONTRACT

1	Earnest Money Deposit (EMD)	Rs. 17,590.00/-
2	Initial Security Deposit (ISD)	2% of the total Contract value (including EMD). To be submitted by the successful bidder before commencement of the work.
3	Period of completion	45 Days
4	Defects Liability period	12 months after completion as recorded in the completion certificate.
5	Agreed Liquidated Damages	0.5% of contract amount per week of delay subjected to a maximum of 5% of total contract value
6	Period of final measurement	One months after completion as recorded in the completion certificate
7	Minimum value of work to be Executed for issue of interim Certificates for making payment	Minimum Rs.7.00 Lakhs
8	Retention money from each bill	10% of gross value of each interim bill, subject to max. 5% of contract value
9	Total retention money including Earnest money and initial security Deposit	5% of the contract value
10	Release of Security deposit after Virtual completion.	50% of the total security to be released along with final certificate of payment, but only after removing all his materials, equipment, labour, huts/force, temporary sheds/stores, all his installations, machinery etc., from the site. Balance payment to be released on completion of defects liability period of 12 months
11	Period for honoring Architect's certificate	20 working days from date of receipt of Architect's certificate of payment for interim bills and 30 working days for final certificate.

WITNESS :

DATE :

SIGNATURE OF THE CONTRACTOR WITH DATE

5. GENERAL CONDITIONS OF CONTRACT

Except where provided for in the description of the individual items in the schedule of quantities and in the specifications and conditions laid down hereinafter and in the drawings, the work shall be carried out as per standard specifications (relevant IS) and under the direction of Employer / Architect.

5.1 INTERPRETATION

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

- 5.1.1 **Employer:** The term Employer shall denote SBI (on behalf of SBI) with their Circle office at Abids, Hyderabad and any of its employees representative authorized on their behalf.
- 5.1.2 **Architects / Consultants :** The term Architects shall mean **M/S ARCHITECTS CHABER, The Livingstone, AIIMS Nagar ,Lane -6, Patrapada, Bhubaneswar-751019** or in the event of his / their ceasing to be the Architects for the purpose of this contract such other persons as the Employer shall nominate for the purpose. The Architect with the approval of the Bank may engage a local Architect /Consulting Engineer for the supervision and co-ordination of the work at the site. He will be considered a representative of the Architect. The Bank may also engage a Project Management Consultant for the supervision of the work. He will be designated by the term PMC and works as Employer's agent at the site.
- 5.1.3 **Contractor:** The term Contractor shall mean _____ (Name and address of the Contractor) and his/ their heirs, legal representative, assigns and successors.
- 5.1.4 **Site:** The site shall mean the site where the works are to be executed SBILD, Vizianagaram Building including any building and erections thereon allotted by the Employer for the Contractor's use.
- 5.1.5 **Drawings:** The work is to be carried out in accordance with drawings, specifications, the schedule of quantities and any further drawings which may be supplied or any other instruction, which may be given by the Employer during the execution of the work.

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

In case any detailed Drawings are necessary Contractor shall prepare such detailed drawings and / or dimensional sketches therefore and have it confirmed by the Employer / Architects / PMC as case may be prior to taking up such work. .

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

- 5.1.6 **Act of Insolvency:** shall mean any act as such as defined by the Presidency Towns Insolvency Act or in Provincial Insolvency act or any amending status.
- 5.1.7 **The Schedule of Quantities:** shall mean the schedule of quantities as specified and forming part of this contract
- 5.1.8 **Priced Schedule of Quantities:** shall mean the schedule of quantities duly priced with the accepted quoted rates of the Contractor.
- 5.1.9 **Works:**
Shall mean the works to be executed in accordance with the contract specifications and schedule of quantities

5.1.10 **Contract:**

Shall mean the Articles of Agreement, the general conditions special conditions, the appendix, the schedule of quantities, specifications and drawings attached here to and duly signed.

5.1.11. **The Schedule of Quantities:**

Shall mean the schedule of quantities as specified and forming part of this contract.

5.1.12. **Priced schedule of Quantities:**

Shall mean the schedule of quantities duly priced with the accepted quoted rates of the contractor.

5.1.13. **Contract Price:**

Shall mean the sum named in the Tender subject to such additions thereto or deductions therefrom as may be made under the provisions hereafter contained.

5.1.14. **'Notice in Writing'** or written notice shall mean a notice in writing, type 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 addressee and shall be deemed to have been received when in the ordinary course of post it would have been delivered.

5.1.15. **'Virtual Completion'** shall mean the building is in the opinion of the Architect and Employer fit for occupation.

5.1.16. Words importing persons include firms and corporations. Words importing the singular only, also include the plural and vice versa where the context requires.

5.2.0 **SCOPE**

The work consists of Construction of **COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD,VIZIANAGARAM, A.P** in accordance with the "drawings" and "schedule of quantities." It includes furnishing of all materials, labour, tools and equipment and management necessary and incidental to the construction and completion of work. All work, during its progress and upon the completion, shall conform to the lines, elevations and grades as shown on the drawings furnished by the Employer/Architect. Should any detail essential for efficient completion of the work be omitted from the drawings and specifications it shall be the responsibility of the Contractor to inform the Employer/Architect and to furnish and install such details with Employer's / Architect's concurrence, so that upon completion of the proposed work the same will be acceptable and ready for use. Employer or his agent (PMC) / Architects may in their absolute discretion issue further drawings and / or written instructions, details, directions and explanations, which are, hereafter collectively referred to as "The Employer's / Architect's instructions" in regard to:

5.2.1 The variation or modification of the design quality or quantity of works or the addition or omission or substitution of any work.

5.2.2 Any discrepancy in the drawings or between the schedule of quantities and / or drawings and / or specification.

5.2.3 The removal from the site of any defective material brought thereon by the Contractor and the substitution of any other material thereof.

5.2.4 The demolition removal and / or re-execution of any work executed by the Contractor/s.

5.2.5 The dismissal from the work of any persons employed there upon.

5.2.6 The opening up for inspection of any work covered up.

5.2.7 The rectification and making good of any defects under clauses hereinafter mentioned and those arising during the maintenance period (Defect Liability Period). The Contractor shall forthwith comply with and duly

execute any work comprised in such Employer's or his agent / Architect's instructions, provided always that verbal instructions, directions and explanations given to the Contractor's or his representative upon the works by the Employer's or his agent/Architects shall, if involving a variation, be confirmed in writing to the Contractors within seven days. No works for which rates are not specifically mentioned in the priced schedule of quantities, shall be taken up without written permission of the Employer or his agent / Architects. Rates of items not mentioned in the priced schedule of quantities shall be fixed by the Employer in consultation with the Architects as provided in clause "variation". The Contractors shall set up a field laboratory with necessary equipment for day to day testing of materials like grading of coarse and fine aggregates, silt content and bulkage of sand, cube testing etc. or the materials can be tested in any reputed laboratory. Regarding all factory made products for which ISI marked products are available, only products bearing ISI marking shall be used in the work.

5.3.0 TENDERERS SHALL VISIT THE SITE

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

5.4.0 TENDERS

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

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

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

All items of work described in the schedule of quantities are to be deemed and paid as complete works in all respects and details including preparatory and finishing works involved, directly related to and reasonably detectable from the drawings, specifications and schedule of quantities and no further extra charges will be allowed in this connection. In the case of lump-sum charges in the tender in respect of any items of work will be made for the actual work done on the basis of lumpsum charges as will be assessed to be payable by the Employer / Architects. The Employer has power to add to, omit from any work as shown in drawings or described in specifications or include in schedule of quantities and intimate the same in writing but no addition, omission or variation shall be made by the Contractor without authorization from the Employer. No variation shall vitiate the contract.

The tenderer shall note that his tender shall remain open for consideration for a period of three months from the date of opening of the tender (Price Bid).

5.5 AGREEMENT

The successful Contractor will be required to sign agreement in accordance with the draft agreement form enclosed and the schedule conditions. The Contractor shall pay for all stamps and legal expenses, incidental thereto. However the written acceptance by the Employer of a tender will constitute a binding contract between the Employer and the person so tendering whether such formal agreement is or is not subsequently executed.

5.6 PERMITS AND LICENSES

Permits and licenses for release of materials which are under Government control will be arranged by the Contractor. The Employer will render necessary assistance, sign any forms or applications that may be necessary. The basic price of controlled materials, if any, for the purpose of valuing the tender, is to be considered as stipulated below. This will also be the basis of adjustments in settling the Contractor's bills.

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

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

The Employer / Architect shall be indemnified against all Government or legal actions for theft or misuse of cement, M.S.Rods and any controlled Materials in the custody of the Contractor.

5.7 GOVERNMENT AND LOCAL RULES

The Contractor shall confirm to the provisions of all local bye - laws and Acts relating to the work and to the regulations etc., of the Government and local Authorities and of any company with whose system the structure is proposed to be connected. The Contractor shall give all notices required by said Act, Rules, Regulations and bye-laws etc., and pay all fees payable to such authority/authorities for execution of work involved. The cost, if any, shall be deemed to have been included in his quoted rates, taking into account all liabilities for licenses, fees for footpath encroachment and restorations etc., and shall indemnify the Employer against such liabilities and shall defend all actions arising from such claims or liabilities.

5.8 TAXES AND DUTIES

The tenderers must include in their tender prices quoted for all duties royalties, cess, octroi or any other taxes or local charges as applicable. No extra claim on this account will in any case be entertained. GST will be paid as applicable.

5.9 QUANTITY OF WORK TO BE EXECUTED

The quantities shown in the schedule of the quantities are intended to cover the entire remaining work for completion of the structure indicated in the drawings but the Employer reserves the right to execute only a part of the whole or omit/delete any item/s before commencement/execution or execute any excess thereof without assigning any reason therefore.

Variation in the quantity is however not expected to be more than +25%. The quoted rate shall be applicable for variations of quantity up to +25%. If the quantity of work to be executed varies beyond +25%, the rate for the quantity beyond +25% variation will be settled as per clause No 5.34 of "General conditions". Nothing extra will be paid neither for omission/deletion of any item/s nor for execution of only part of the quantities stated in the Schedule of quantities.

5.10 OTHER PERSONS ENGAGED BY THE EMPLOYER

The Employer reserves the right to execute any part of the work included in this contract or any work which is not included in this contract by the other Agency or persons and Contractor shall allow all reasonable

facilities and use of his scaffoldings for the execution of such work. The main Contractor shall extend all cooperation in this regard.

5.11 EARNEST MONEY AND SECURITY DEPOSITS

The tenderer will have to deposit an amount of ₹. **17,590.00 (Rupees Seventeen Thousand Three Hundred Thirteen Only)** in the form of Bank draft drawn in favour of Asst General Manager (P&E), SBI, LHO Amaravati at the time of submission of tender as an Earnest money. The Employer is not liable to pay any interest on the earnest money. The Earnest money of the unsuccessful tenderers will be refunded without any interest soon after the decision to award the work is taken after the expiry of the validity period of the tender.

The successful tenderer to whom the contract is awarded will have to deposit as initial security deposit a further sum to make up 2% of the value of the accepted tender. The initial security deposit will have to be made within 10 days from the date of acceptance of tender, failing which the Employer at his discretion may revoke the letter of acceptance and forfeit the earnest money deposit furnished along with the tender. It shall be refunded to the Contractor within 14 days after the issue of certificate of virtual completion. However, ISD will not bear any interest.

5.11.1 50% of the retention amount shall be refunded to the Contractor on completion, subject to the following:

5.11.1.1 Issue of virtual completion certificate by the Architect/Bank.

5.11.1.2 Contractor's removal of his materials, equipment, labour force, temporary sheds/stores etc. from the site (Excepting for a small presence required if any for the defect liability / period and approved by Bank).

5.11.2 The remaining 50% of the retention amount will be refunded to the Contractor 14 days after the end of the defects liability period (12 months) provided he has satisfactory carried out all the work and attended to all defects in accordance with the conditions of the contract. No interest is allowed on retention money.

5.12 CONTRACTOR TO PROVIDE EVERYTHING NECESSARY

The Contractor shall provide everything necessary for the proper execution of the work according to the intent and meaning of the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from and if the Contractor finds any discrepancies therein he shall immediately and in writing, refer the same to the Employer / Architects whose decision shall be final and binding. The Contractor shall make his own arrangement of water required for construction, electricity for carrying out the works at his own cost. The Employer shall on no account be responsible for the expenses incurred by the Contractor for water and electricity. (The contractor should submit the certificate showing the water is fit for construction)

He may use ground water by drilling within the site a bore and installing required capacity pump and water supply line. Up on completion of work, the Contractor shall handover the bore with the pump and pipe line in working condition to the Employer, no charges will be paid on this account. The bore well water shall be tested and approved by the Employer/Architect for its suitability for using in works as well as curing.

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

The Contractor shall supply, fix and maintain at his own cost, for the execution of any work, all tools, tackles, machinery and equipment and necessary centering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, boarding, watching and lighting by night as well as by day required not only for the proper execution and protection and the said work but also for the protection of the public and

safety of any adjacent roads, streets, walls, houses, buildings, all other erections, matters and things and the Contractor shall take down and remove any or all such centering, scaffolding, planking, timbering, strutting, shoring etc., as occasion shall be required or when ordered so to do, and shall fully reinstate and make all good matters and things disturbed during the execution of works to the satisfaction of the Employer / Architect.

The Contractor shall also provide such temporary road on the site as may be necessary for the proper performance of the contract and for his own convenience but not otherwise. Upon completion, such roads shall be broken up and leveled where so required by the drawings unless the Employer shall otherwise direct.

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

5.13 TIME OF COMPLETION, EXTENSION OF TIME & PROGRESS CHART

5.13.1 **Time of Completion:** The entire work is to be completed in all respects within the time mentioned in NIT period. The work shall deemed to be commenced within ten days from the date of acceptance letter or date of handing over of site, whichever is earlier. Time is the essence of the contract and shall be strictly observed by the Contractor.

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

5.13.2 **Extension of Time:** If in the opinion of the Employer/Architect the works be delayed

5.13.2.1 By reason of any exceptionally inclement weather, which does not include normal Monsoon
or

5.13.2.2 By reasons of instructions from the Employer in consequence of proceedings taken or Threatened by or disputes, with adjoining or neighboring Employers
or

5.13.2.3 By the works, or delay, of the Contractors or tradesmen engaged or nominated by the Employer and not referred to in the specification
or

5.13.2.4 By reason of authorized extra and additions
or

5.13.2.5 By reason of any combination of workmen or strikes or lock - out affecting of the building trades
or

5.13.2.6 From other causes which the Employer may consider being beyond the control of the Contractor, the Employer at the completion of the time allowed for the contract shall make fair and reasonable extension of time for completion in respect therefore. In the event of the Employer failing to give possessions of the site upon the day specified above the time of completion shall be extended suitably.

In case of such strikes or lock - outs, as are referred to above, the Contractor shall, immediately give the Employer, written notice thereof. Nevertheless, the Contractor shall use his best endeavors to prevent delay, and shall do all that may be reasonably required, to the satisfaction of the Employer to proceed with the works and on his doing so, it will be ground of consideration by the Employer for an extension of time as above provided. The decision of the Employer as to the period to be allowed for an extension of time for completion hereunder (which decision shall be final and binding on the Contractor) shall be promulgated at the conclusion of such strike or lockout and the Employer shall than, in the event of an extension being granted, determine and declare the final completion date. The provision in clause 5.14 with respect to payment of liquidated damages shall, in such, be read and construed as if the extended date fixed by the Employer were substituted for and the damage shall be deducted accordingly.

5.13.3 **Progress of Work:** During the period of construction the Contractor shall maintain proportionate progress on the basis of a Programme Chart submitted by the Contractor immediately before commencement of work and agreed to by the Employer/Architect, Contractor should also include planning for procurement of scarce material well in advance and reflect the same in the Programme Chart so that there is no delay in completion of the project.

5.13.4 **Force Majeure:** If at any time, during the continuance of the work, the performance in whole or in part by either party of any obligation under this Contract shall be prevented or delayed by reason of any war, hostility, acts of public enemy, civil commotion, sabotage, floods, explosions, epidemics, fires or other acts of God, strikes and lockouts (hereinafter referred to as eventualities) then, provided notice of the happening of any such eventuality is given by either party to the other within 15 days from the date of occurrence thereof, neither party shall by a reason of such eventuality be entitled to terminate this Contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance and construction of work under this contract shall be resumed as soon as practicable after such eventuality has ceased. Appropriate extension in time of completion shall be granted.

5.14 LIQUIDATED DAMAGES.

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

For contracts having time for completion exceeding 3 months but not exceeding 6 months	0.50% of the tender amount per week subject to a ceiling of 5% of the accepted contracted sum but not exceeding the total S.D. of the contract
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5.15 TOOLS, STORAGE OF MATERIALS, PROTECTIVE WORKS AND SITE OFFICE REQUIREMENTS

The Contractor shall provide, fix up and maintain in an approved position proper office accommodation for the Contractor's representative and staff which offices shall be open at all reasonable hours to receive instruction notices or communications and clear away on completion of the works and make good all work disturbed. All drawings maintained on the site are to be carefully mounted on boards of appropriate size and covered with a coat of approved varnish. They are to be protected from ravages of termites, ants, and other insects.

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

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

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

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

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

5.15.1 Protective Measures: The Contractor from the time of being placed in possession of the site must make suitable arrangements for watching, lighting and protecting the work, the site and surrounding property by day, by night, on Sundays and other holidays.

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

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

5.15.2 Storage of materials: The Contractor shall provide and maintain proper sheds for the proper storage and adequate protection of the materials etc. and other work that may be executed on the site including the tools and materials of sub-Contractors and remove same on completion. .

Cement godown shall be constructed for storing about six weeks requirement of cement and stored as per norms with a stack of 10 bags each and 2 feet opening all around with 2 feet passage of each stack. Structure shall be waterproof from all the sides and top. Cement should be stored one feet above the ground level and have pucca raised floor.

So also reinforcement bars are to be stored above the ground level to prevent the same from getting rusted.

5.15.3 Tools: The theodolite levels, prismatic compass, chain, steel, and metallic tapes and all other surveying instruments found necessary on the works shall be provided by the Contractor for the due performance of this contract as instructed by the Site Engineer

All measuring tapes shall be of steel and suitable scaffolding and ladders that may be required for safely taking measurement shall be supplied by the Contractor.

The masons and the supervisors on the works shall carry with them always a: one metre or two metre steel tape, a measuring tape of 30 meters, a spirit level, a plumb bob and a square and shall check the work to see that the work is being done according to the drawing and specifications. The Site Engineer will use any or all measuring instruments or tools belonging to the Contractors as he chooses for checking the works executed or being executed on the contract.

The Contractor should cover in his rates for making provisions for all reasonable facilities for the use of his scaffolding, tools and plant etc., by sub-Contractors for their work.

5.16 NOTICE AND PATENTS OF APPROPRIATE AUTHORITY AND OWNERS

The Contractor shall conform to the provisions of any Acts of the Legislature relating to the work, and to the Regulations and Bye-Laws of any authorities, and/or any water, lighting and other companies, and/or authorities 'with whose systems the structures were proposed to have connection and shall before making any variations from the drawings or specifications that may be associated to so conform, give the Employer / Architects written notices specifying the variations proposed to be made and reasons for making them and apply for instruction thereon. The Employer/Architect on receipt of such intimation shall give a decision within a reasonable time.

The Contractor/s shall arrange to give all notices required for by the said Acts, Regulations or Bye-laws to be given to any authority, and to pay to such authority or to any public officer all fees that may be properly chargeable in respect of the work and lodge the receipts with the Employer.

The Contractor shall indemnify the Employer against all claims in respect of course of execution of work and shall defend all actions arising from such claims and shall keep the Employer saved harmless and indemnified in all respects from such actions, costs and expenses.

5.17 CLEARING SITE AND SETTING OUT WORKS

The site shown on the plan shall be cleared of all obstructions, loose stone and materials rubbish of all kinds. All holes or hollows whether originally existing or produced by removal or loose stone or materials shall be carefully filled up with earth well rammed and levelled off as directed at his own cost.

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

5.18 DATUM

The average ground level will be considered as the crown of the Main road at the higher level if there is a slope, which should be taken as "Datum" which is however, subject to final confirmation by the Employer/Architect. All levels shown in the drawings are to be strictly adhered to.

5.19 BENCHES

The Contractor is to construct and maintain proper benches of all the main walls, in order that the lines and levels may be accurately checked at all times.

These benches will consist of brick masonry post of adequate size to be constructed at the ground at suitable distance as directed. The lines will be marked on the top of brick pillars on the centre lines of columns, walls, inside and outside faces of foundation trenches, in order that lines may be stretched between the benches and accurate intersection of excavation. Centre line of walls, columns etc., may be clearly indicated and checked at any time if it is so required.

5.20 CONTRACTOR IMMEDIATELY TO REMOVE ALL OFFENSIVE MATTERS

All soil, filth or other matters of any offensive nature taken out of any trench, sewer, drain, cesspool or other place shall not be deposited on the surface but shall be at once carted away by the Contractor to place provided by him.

The Contractor shall keep the foundation and works free from water and shall provide and maintain at his own expenses electrically or other power driven pumps and other plant to the satisfaction of the Employer for the purpose, until the building is handed over to the Employer. The Contractor shall arrange for the disposal of the water so accumulated to the satisfaction of the Employer and local authority and no claims will be entertained afterwards if he does not include in his rates for the purpose.

5.21 ACCESS

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

5.22 MATERIALS, WORKMANSHIP, SAMPLES, TESTING OF MATERIALS.

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

All mandatory tests shall be carried out as per CPWD/IS specifications. If required by the Employer/Architect the Contractor shall have to carry out tests on materials and workmanship in approved materials testing laboratories or as prescribed by the Employer/Architect at his own cost to prove that the materials etc., under test conform to the relevant I.S. Standards or as specified in the specifications. The necessary charges for preparation of mould (in case of concrete cube) transporting, testing etc., shall have to be borne by the Contractor. No extra payment on this account should in any case be entertained.

All the materials (except where otherwise described) stores and equipment required for the full performance of the work under the contract must be provided through normal channels and must include charges for import duties, sales tax, octroi and other charges and must be the best of their kind available and the Contractors must be entirely responsible for the proper and efficient carrying out of the work. The work must be done in the best workmanlike manner. Samples of all materials to be used must be submitted to the Employer / Architects and written approval from Employer must be obtained prior to placement of order.

During the inclement weather the Contractor shall suspend concreting and plastering for such time as the Employer/Architect may direct and shall protect from injury all work when in course of execution. Any damage (during constructions) to any part of the work for any reasons due to rain, storm, or neglect of Contractor shall be rectified by the Contractor in an approved manner at no extra cost.

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

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

5.23 REMOVAL OF IMPROPER WORK

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

The work is liable to be technically examined and audited by the Bank's Chief Technical Examiner or Central Vigilance Commission, Govt. of India from time to time. Any defects/ improvements or testing etc. pointed out by the Chief Technical Examiner/ Technical Examiner should have to be carried out by the Contractor at his own cost and any deductions suggested by the CTE/ TE will be effected from the amount payable to the Contractor or from his security deposit etc.

5.24 SITE ENGINEER

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

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

5.25 OFFICE ACCOMMODATION FOR THE SITE ENGINEER

The Contractor shall provide, erect and maintain at his cost a separate simple watertight office accommodation for the Site Engineer office. This accommodation shall be well lighted and ventilated and provided with windows, door with a lock. The site engineer's office shall be a minimum of 150 sq. ft. and the Contractor shall provide a desk, chairs, drawers for keeping drawings, a cupboard having proper lock and a tackboard for displaying drawings. The accommodation shall be demolished and debris carted away when directed.

5.26 CONTRACTOR'S EMPLOYEES

The Contractor shall employ technically qualified and competent supervisors for the work who shall be available (by turn) throughout the working hours to receive and comply with instructions of the Employer/Architect. The Contractor shall engage at least one experienced Engineer with minimum qualification of B.E. / B. Tech in Civil Engineering as site-in-charge for execution of the work. The Contractor shall employ in connection with the work, persons having the appropriate skill or ability to perform their job efficiently.

The Contractor shall employ local labourers on the work as far as possible. No labourer below the age of eighteen years and who is not an Indian National shall be employed on the work.

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

The Contractor shall comply with the provisions of all labour legislation including the requirements of:

5.26.1 The payment of Wages Act.

5.26.2 Employer's Liability Act

5.26.3 Workmen's Compensation Act.

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

5.26.5 Apprentices Act. 1961

5.26.6 Minimum Wages Act

5.26.7 Any other Act or enactment relating thereto and rules framed there under from time to time.

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

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

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

5.27 DISMISSAL OF WORKMEN

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

5.28 ASSIGNMENT

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

5.29 DAMAGE TO PERSONS AND PROPERTY INSURANCE ETC.

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

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

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

The Employer shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or accruing from or in respect of any such claim or damages from any sums due or to become due to the Contractor.

5.30 INSURANCE (Contractor's All Risk Policy)

Unless otherwise instructed the Contractor shall insure the works and keep them insured until the virtual completion of the contract against loss or damage (incl. third party) by fire and earthquake, flood, wars, storms etc. The insurance must be placed with a company approved by the Employer, in the joint names of the Employer and the Contractor (the name of former being placed first in the policy) for full amount of contract and for any further sum if called to do so by the Employer, the premium of such being allowed to the Contractor as an authorized extra.

The Contractor shall deposit the policy and receipt for premiums paid with the Employer within 21 (twenty one) days from the date of issue of work order unless otherwise instructed. In default of the Contractor insuring as provided above, the Employer on his behalf may so insure and may deduct the premiums paid from any money due, or which may become due to the Contractor. The Contractor shall as soon as the claim under the policy is settled or the work reinstated by the Insurance Company should they elect to do so, proceed with due diligence with the completion of the works in the same manner as though the fire has not occurred and in all respects under the conditions of the contract. The Contractor in case of rebinding or reinstatement after fire shall be entitled to extension of time for completion as the Employer may deem fit.

5.31 ACCOUNTS RECEIPTS & VOUCHERS

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

5.32 MEASUREMENTS

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

5.33 PAYMENTS

All bills shall be prepared by the Contractor in the form prescribed by the Employer / Architect. Normally one interim bill shall be prepared each month subject to minimum value for interim certificate as stated in these documents. The bills in proper forms must be duly accompanied by detailed measurements in support of the quantities of work done and must show deductions for all previous payments, retention money, etc.

The Architect shall issue a certificate after due scrutiny of the Contractor's bill stating the amount due to the Contractor from the Employer and the Contractor shall be entitled to payment thereof, within the period of honoring certificates named in these documents. In case of delay due to some reasons in the processing of such bills for payment, an adhoc advance of 75% of the billed amount may be paid on the request of the Contractor for the smooth progress of the work.

The amount stated in an interim certificate shall be the total completed value of work properly executed, less the amount to be retained by the Employer as retention.

5.33.1 Payment will be made only for completed value of works. No advance will be paid for material procured at site.

The Employer will deduct retention money as described. The refund of retention money will be made as specified.

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

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

5.33.2 Final Payment : The final bill shall be accompanied by a certificate of completion from the Employer / Architect. Payment of final bill shall be made after deduction of Retention Money as specified, which sum shall be refunded after the completion of the Defects Liability Period after receiving the Architect's certificate that the Contractor has rectified all defects to the satisfaction of the Employer/Architect. The acceptance of the payment of the final bill by the Contractor would indicate that he will have no further

claim in respect of the work executed.

The Employer shall have a right to cause technical examination and audit of the works and the final bill of the Contractor including all supporting vouchers, abstracts, etc., to be made at the time of payment of final bill. If as a result of this examination or otherwise any sum is found to have been overpaid or over certified, it shall be lawful for the Employer to recover the same from the Contractor from any sum due to him.

In case, after completion of the work and final payment to the Contractor, it is found on account of General Audit, Technical audit and or any other reason whatsoever that any amount is recoverable from the Contractor, it shall be lawful for the Employer, to recover the same from any sum whatsoever payable by the Employer to the Contractor either in respect of this contract or any other contract or on any other account by any other branch/department of the Employer.

5.34 VARIATION / DEVIATION

The tender rates shall be applicable for any increase in the tendered quantities up to variations of +25%. If the quantity of work to be executed varies beyond +25%, the rate for the quantity beyond +25% of such items will be derived as per standard method of rate analysis (coefficients will be adopted as per CPWDINBO analysis of rates wherever applicable, if coefficients are not available in CPWDINBO, market rate analysis approved by the Bank will be final and binding on the Contractor) based on prevalent fair price of labour (labour rate for various category as per minimum wages act as applicable will be adopted for the purpose of analysis irrespective of higher wages if any paid by the Contractor), material and other components as required including 15% towards Contractor's profit & overheads. In case the quantity decreases or item/s omitted/deleted at the time of allotment, commencement, execution, the Contractor will be paid for the actual work done at the site duly verified by the concerned officials of the Bank. Nothing extra will be paid by the Bank on account of omission/deletion of items or decrease in the quantity of items. The Bank shall not entertain any claim whatsoever from the Contractor on this account.

The price of all additional items/ non-tendered items will be worked out on the basis of rates quoted for similar items in the contract wherever existing. If similar items are not available, the rates for such items will be derived as per standard method of rate analysis (coefficients will be adopted as per CPWDINBO analysis of rates wherever applicable, if coefficients are not available in CPWDINBO, market rate analysis approved by the Bank will be final and binding on the Contractor) based on prevalent fair price of labour (labour rate for various category as per minimum wages act as applicable will be adopted for the purpose of analysis irrespective of higher wages if any paid by the Contractor), material and other components as required including 15% towards Contractor's profit & overheads.

5.35 SUBSTITUTION

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

5.36 PREPARATION OF BUILDING WORKS FOR OCCUPATION AND USE ON COMPLETION

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

On completion the Contractor shall clean all windows and doors including the cleaning and oiling if necessary, of all hardware, inside and outside, all floors, stair-cases, and every part of the building. He will leave the entire building neat and clean and ready for immediate occupation and to the satisfaction of the Bank.

5.37 CLEARING SITE ON COMPLETION

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

5.38 DEFECTS AFTER COMPLETION

The Contractor shall make good at his own cost and to the satisfaction of the Employer all defects, shrinkage, settlements or other faults which may appear within 12 months after completion of the work. In the default, the Employer may employ and pay other persons to amend and make good such 'damages, losses and expenses consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damages, loss and expenses shall be recoverable from him by the Employer or may be deducted by the Employer, in lieu of such amending and making good by the Contractor, deduct from any money due to the Contractor a sum equivalent to the cost of amending such work and in the event of the amount retained being insufficient recover that balance from the Contractor from the amount retained together with any expenses the Employer may have incurred in connection therewith.

5.39 CONCEALED WORK

The Contractor shall give due notice to the Employer/Architect whenever any work is to be buried in the earth, concrete or in the bodies of walls or otherwise becoming inaccessible later on, in order that the work may be inspected and correct dimensions taken before such burial, in default whereof the same shall, at the opinion of the Employer/ Architect be either opened up for measurement at the Contractor's expenses. Should any dispute or differences arise after the execution of, any work as to measurements etc., or other matters which cannot be conveniently tested or checked, the notes of the Employer/Architect shall be accepted as correct and binding on the Contractor.

5.40 SUSPENSION

If the Contractor except on account of any legal restraint upon the Employer preventing the continuance of the work or in the opinion of the Employer shall neglect or fail to proceed with due diligence in the performance of his part of the contract or if he shall more than once make default, the Employer shall have the power to give notice in writing to the Contractor requiring the work to be proceeded within a reasonable manner and with reasonable dispatch, such notice purport to be a notice under this clause.

After such notice shall have been given the Contractor shall not be at liberty to remove from the site of the works or from any ground contiguous thereto any plant or materials to subsist from the date of such notice being given until the notice shall have been complied with. If the Contractor fails to start the work within seven days after such notice has been given to proceed with the works as therein prescribed, the Employer may proceed as provided in clause **Termination of Contract** by Employer

5.41 TERMINATION OF CONTRACT BY EMPLOYER

If the Contractor being a company go into liquidation whether voluntary or compulsory or being a firm shall be dissolved or being an individual shall be adjudicated involvement or shall make an assignment or a composition for the benefit of the greater part, in number of amount of his creditors or shall enter into a Deed or arrangement with his creditors, or if the Official Assignee in insolvency, or the Receiver of the Contractor in insolvency, shall repudiate the contract, or if a receiver of the Contractor's firm appointed by the court shall be unable within fourteen days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Employer that he is able to carry out and fulfill the contract, and if so required by the Employer to give reasonable security therefore, or if the Contractor shall suffer execution to be issued, or shall suffer any payment under this 'contract to be attached by or on behalf of and of the creditors of the Contractor, or shall assign, charge or encumber this contract or any payments due or which may become due to Contractor, there under, or shall neglect or fail to observe and perform all or any of the acts matters of things by this contract, to be observed and performed by the Contractor within three clear days after the notice shall have been given to the Contractor in manner hereinafter mentioned requiring the Contractor to observe or perform the same or shall use improper materials of workmanship in carrying on the works, or shall in the opinion of the Employer not exercise such due diligence and make such progress as would enable the work to be completed within due time agreed upon, and shall fail to proceed to the satisfaction of the Employer after three clear days notice requiring the Contractor so to do shall have been given to the Contractor as hereinafter mentioned or shall abandon the contract, then and in any of the said cases, the Bank may notwithstanding previous waiver determine the contract by a notice in writing to the effect as hereinafter mentioned, but without thereby effecting the powers of the Employer of the obligations

and liabilities of the Contractor the whole of which shall continue in force as fully as if the contract, had not been so determine and as if the works subsequently executed by or on behalf of the Contractor (without thereby creating any trust in favour of the Contractor) further the Employer or his agent, or servants, may enter upon and take possession of the work and all plants tools scaffolding sheds machinery, steam, and other power, utensils and materials lying upon premises or the adjoining lands or roads and sell the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completing the works or by employing any other Contractors or other persons or person to complete the works, and the Contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other Contractors or other persons or person employed from completing and finishing or using the materials and plants for the works when the works shall be completed, or as soon thereafter as conveniently may be the Employer shall give notice in writing to the Contractor to remove his surplus materials and plants and should the Contractor fail to do so within a period of 14 days after receipt by him the Employer may sell the same by Public Auction and shall give credit to the Contractor for the amount so realized.

Any expenses or losses incurred by the Employer in getting the works carried out by other Contractors shall be adjusted against the amount payable to the Contractor by way of selling his tools and plants or due on account of work carried out by the Contractor prior to engaging other Contractors or against the Security Deposit.

5.42 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 thirty(30) days after notice in writing requiring payment, 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 compulsory 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 so to do, to know to the reasonable satisfaction of the Contractor that he is able to carry out and fulfill the contract and to give security of the same or if the works be stopped for any payments due and to become due there under and if required by : months under the order of the Architects of the Employer or by an injection or other order of any court of law, then and in any of the said cases the Contractor shall be at liberty to determine the contract by notice, in writing to the Employer, to the Architect and he shall be entitled to recover from the Employer, payment for all works executed and for any loss he may sustain upon any plant or materials supplied or purchase or prepared for the purpose of the contract.

In arriving at the amount of such payment the net rates contained in the Contractor's original tender shall be followed or where the same may not apply for extra items.

Matters to be finally determined by the Architects and the Bank, which shall be final, conclusive and binding on the following matters:

- 5.42.1 Instructions
- 5.42.2 Transactions with local authorities
- 5.42.3 Proof of quality of materials
- 5.42.4 Assigning or under letting of the contract
- 5.42.5 Certificates to the causes of delay on the part of the Contactor and Justifying extension of time or otherwise
- 5.42.6 Rectification of defects pointed out during the defects liability period.
- 5.42.7 Notice to the Contractor to the effect that he is not proceeding with due diligence
- 5.42.8 Certificate that the Contractor has abandoned the contract
- 5.42.9 Notice for determination of the contract by the Employer

5.43 ARBITRATION

The Employer's decisions, opinions, directions, certificates with respect to all or any of the matters under clause No.5.2, 5.9, 5.12, 5.13, 5.14,5.22,5.23,5.27,5.32 &5.43 of GENERAL CONDITIONS OF CONTRACT shall be final, conclusive and binding on the parts hereto and shall be without any appeal.

5.43.1 Settlement of Disputes and Arbitration

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

5.43.1.1 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 SBI 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 such claim shall have been given by the Contractor to the SBI 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 General Manager I in writing in the manner and within the time aforesaid.

5.43.1.2 The AGM SBI 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 AGM SBI submit his claims to the conciliating authority namely the SBI, Amaravati Circle for conciliation along with all details and copies of correspondence exchanged between him and the SBI.

5.43.1.3 If the conciliation proceedings are terminated without settlement of the disputes, the Contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned The AGM SBI for appointment of an arbitrator to adjudicate the notified claims falling which the claims of the Contractor shall be deemed to have been considered absolutely barred and waived.

5.43.1.4 Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the Contractor as aforesaid and all claims of the Bank shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the Chief General Manager/Managing Director. It will also be no objection to any such appointment that the Arbitrator so appointed is a Bank Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as Bank Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said Chief General Manager/Managing Director. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

5.43.1.5 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.

5.43.1.6 It is also a term of this contract that no person other than a person appointed by such General Manager/Managing Director as aforesaid should act as arbitrator.

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

5.43.1.8 It is also a term of this 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.

5.43.1.9 It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any, of the arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any of the arbitrator)

shall be in the discretion of the arbitrator who may direct to any 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.

6.1 TENDER

The project consists of **COMPOSITE WORKS (INTERIOR FURNISHING, ELECTRICAL AND AIR CONDITIONING) FOR REPAIR & RENOVATION OF CANTEEN BLOCK AT SBILD,VIZIANAGARAM, A.P** The scope of the project is described in the drawings the specifications and schedule of quantities.

6.2 SITE

The site of work is Bank's OWN Building located in SBILD, Vizianagaram, Andhra Pradesh.

6.3 RATES QUOTED

The rates quoted in the tender shall be for the finished items of work. The rates quoted shall include all the charges required for labour, material, sheds for storage of materials, transportation of material and equipment, tools and plants, Wastage, cleaning of sites during execution of various items of work, overheads etc. and to do all things necessary to provide complete finished items of work consistent with the specifications attached to this tender document. The rates quoted shall also include all duties, royalties cess, income tax, octroi, or any other taxes or local charges or duties etc. as applicable till the completion of work. No extra claim will in any case be entertained. The rates shall be firm and shall not be subjected to exchange variations due to labour conditions or any other conditions whatsoever. **GST will be paid extra as applicable.**

6.4 PAYMENT

Payment will be made by the Employer after receipt and check of the Contractor's bill (GST invoice duly verified) by the Architect and the Bank's Engineer-in-Charge after deduction of TDS Applicable, Security deposit etc. as per statutory rules and terms of tender for the value of work executed as per specifications and drawings. For this purpose, the Contractor must submit his on account bills on the prescribed form duly accompanying the detailed measurements in support and showing deductions for the provisional payment received by him. The security money thus retained from all bills and initial security deposit will become payable to Contractor as applicable. The Employer is not liable to pay any interest on the security money thus retained.

But all such intermediate payments shall be regarded as part payments by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude and requiring of bad, unsound and imperfect or unskillful work to be removed and taken away and reconstructed or re-erected, or be considered as an admission of the due performance of the contract, or any part thereof, in any respect or the accruing of the claim, nor, shall it conclude, determine or affect in any way the powers of the Architect under these conditions or any of them as to the final settlements and adjustment of the accounts or otherwise or in any other way vary or affect the Contractor within three months of the date of the completion of the work. Otherwise, the Architect's certificate of measurements and of the total amount payable for the work and approved by the Bank shall be final. The minimum amount for interim certificate shall be **₹. 7,00,000/- (₹. Seven Lakhs only)**. However, the Employer at his discretion can pay for interim payments of lesser value also.

6.5 VALIDITY OF PRICE

The Contractor shall have no right to ask for the alteration of the rates, terms and conditions quoted by the Contractor and shall be final and to be subsisting and valid for the execution of the work.

6.6 LOWEST TENDER

The Employer shall have the right to reject any or all the tenders and will not be bound to accept the lowest or any tender and the tenderer or tenderers shall have no right to question the acts of the Employer in this respect.

6.7 CO-OPERATION

The Contractor will be required to consult and co-operate with other Contractors whose work may be affected by the work under this contract.

6.8 TREASURE TROVE ETC.

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

6.9 WATER SUPPLY, TOILETS ETC.

The selected tenderer shall make his own arrangements at his own costs for the supply of approved quality water required for construction and for drinking purposes and shall provide at his costs all tubes, fittings and temporary plumbing works required and on completion of the works, shall remove all temporary appliances and make good any work disturbed for making such arrangements to the satisfaction of the Employer.

6.10 ELECTRIC POWER

Tough electric power is available at the site the Contractor shall make his own arrangements for power and supply system for driving plant and machinery for the work and for lighting purpose at his own cost. The cost of running and maintenance of the plants are to be included in his tender prices. He shall pay all fees and charges legally demandable and include the same in his tendered rates and hold the Employer free from all such costs. As bank already secured electric power connection the contractor shall pay the power charges as per the usage.

6.11 METHOD OF MEASUREMENT

Unless otherwise mentioned in the Schedule of Quantities measurements will be on the net quantities of work produced in accordance with up-to-date rules laid down by the Indian Standards Institution. In the event of any dispute in regard to the measurements of the work executed, the decision of the Architect/Bank shall be final and binding on the Contractor.

6.12 COMPENSATION UNDER WORKMEN'S COMPENSATION ACT PAYABLE BY THE CONTRACTORS

In every case in which by virtue of the provisions in Section 12, Sub-section (1) of the Workmen's Compensation Act, 1923, Employer is obliged to pay compensation to the workman employed by the Contractor, in execution of the works. Employer will recover from the Contractor, the amount of the compensation paid, and without prejudice to the rights of the Employer under Section 12, Sub-section (2) of the said Act, Employer shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by the Employer to the Contractor whether under this contract or otherwise.

6.13 NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP

The Contractor shall give not less than 7 days notice in writing to the Architects/ Bank's engineer or his authorized agent before covering up or otherwise placing beyond the reach of measurement, any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach any work without the consent in writing of the Architect. If any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the Contractor's expenses, or in default thereof no payment or allowance shall be made for such work or the materials, with which the same was executed.

6.14 Action where no specification / contradiction

6.14.1 In the case of any class of work for which there is no specification in Technical Specifications, such work shall be carried out in accordance with the I.S. Specification and in the event of there being no I.S. Specification, then in such case the work shall be carried out in all respects in accordance with the instructions and requirements of the Architect/Bank.

6.14.2 The work is to be carried out by combining the details in Schedule of Quantities, Drawings and Technical specifications. If there is any discrepancy or contradiction between Schedule of quantities, Drawings and Technical specification, the first preference is given to Description in schedule of quantities, second to drawings and third to Technical Specifications.

6.15 CONTRACTOR NOT TO DEPOSIT MATERIALS IN A MANNER THAT MAY CAUSE INCONVENIENCE TO THE PUBLIC

The Contractor shall not deposit materials on any site which will seriously cause inconvenience to the public. The Employer may require the Contractor to remove any or all materials, which are considered by him to be a danger or inconvenience to the public or cause them to be removed at the Contractor's cost.

6.16 SITE CONDITIONS

The Contractor should inspect the work site, where the works under this contract are to be carried out, and obtain for himself at his own responsibility all the information which may be necessary for the purpose of successful execution of the contract.

He must also make himself conversant with all the locations and means of access to the site of work, nature, extent of transport facilities and character of the work and supply of materials conditions affecting labour and other matters that may affect his tender. Employer does not undertake any responsibility to obtain any concessions, permissions from the Owner of the adjoining plot or from any other party of any allowance, access, encroachments etc. whether for the facility of the works of otherwise. No claim therefore will be entertained should the Contractor have failed to comply with this condition.

All fences, trees, shrubs, green and other surfaces about the buildings, or approaches thereto, which are required to be maintained are to be kept free from damages due to preparation in connection with the work.

The site will be made available to the Contractor in its present conditions. Site organization within the site boundaries shall be his responsibilities. No space other than the above site can be made available to the Contractor for the site office, labour camps, storage etc.

6.17 liquidated damages

The time allowed for carrying out the work as envisaged in the tender shall be strictly observed by the Contractor and shall be reckoned as 10 days from the date of issue of work order. The work shall throughout the stipulated period of contract be proceeded with, with all the due diligence (time being deemed to be of the essence of the contract, on the part of the Contractor) and the Contractor shall pay to the Employer, without prejudice to other right of the Employer as compensation @ 0.5% of the value of work for every week that the work remains unfinished after the date stipulated in the Appendix as "Date of Completion" or the extended date is given in the general conditions of contract subject to a maximum of 5.0% of value of work but not exceeding the total S.D. as liquidated damages. The Employer may deduct such sum from the Contractor's security deposit and/or any sum payable to the Contractor at that time or later. The "liquidated damages" as stipulated shall be considered as a genuine pre-estimate of the loss/damage suffered by the Employer due to non completion of work in time. Decision of the Employer in this respect shall be final and binding to the Contractor.

6.18 work programme

The Contractor shall within Seven (7) Days of receipt of intimation that his tender has been accepted, submit to the Architect/Employer a detailed work programme prepared in the form of PERT/CPM network /

Bar Chart as would enable him to complete the work within the time stipulated in the tender and on the basis of detailed work programme enclosed with the tender.

The detailed work programme must indicate date of starting and completion of respective part or sections of the work. The detailed work programme would be subjected to the approval of the Architect/Employer who will have the power of such modifications thereon as found necessary; the actual progress compared with this will be reviewed periodically.

The Contractor at the site of his work at the place or places shown to him shall maintain the following facilities:

6.18.1 Printed time schedule displayed properly

6.18.2 All the drawings which will be given to him for the execution of the work

6.18.3 The Contractor shall keep all the drawings in proper condition and will not be permitted to remove the same from the site of work for any reasons whatsoever. They shall be available for inspection at all times by the Architect and his authorized representatives and Employer/Employer's representatives.

6.18.4 One 30m (100'0") and one 15m (50'0") steel measuring tape with I.S.I stamped certificate and two 3m (10'0") feet tapes, box of chalk for marking.

6.18.5 Measuring books, copies of bills of work due or certified.

6.19 POSSESSION OF BUILDINGS / WORK COMPLETED

The Contractor shall hand over possession to the Employer of the completed works in stages as and when required and 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 works accordingly.

6.20 INFORMATION TO BE SUPPLIED BY THE CONTRACTOR

The Contractor shall furnish the Employer / Architect the following from time to time:

6.20.1 Detailed Industrial Statistics regarding the labour employed by him etc., every month (within 11th of succeeding month)

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

6.20.3 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 the work.

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

6.20.5 The list of plant and machinery employed for this work every month.

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

6.20.6.1 Levying a fine of ₹. 1000/- for each default for each month and or

6.20.6.2 Withholding payments, otherwise due

6.20.6.3 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 ₹.8000/- per month for each month of default.

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

6.21 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 Employer/Architect and submit two copies of each photograph with minimum size 25cm x 40 cm to the Employer/Architect.

6.22 INSPECTION BY THE CHIEF TECHNICAL EXAMINERS (VIGILANCE)

The proposed work covered under this tender, during its 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 Employer/Architect 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, plumb bob, level etc., as required and directed and also necessary labour skilled, unskilled to enable them to complete their inspection / study / technical scrutiny and no extra shall be admissible to the Contractor on this account.

6.23. INCOME TAX

Income tax shall be deducted from the Contractors' bills rules and regulations in force in accordance with Income Tax Act prevailing from time to time. Quoted rates shall be deemed to include this.

6.24. GST Tax:

The quoted rates shall be Exclusive of GST.

6.25. FIRM PRICE

The prices shall be kept Firm till the completion of work and no escalation including statutory variation will be admissible.

6.26. DRAWINGS & DOCUMENTS

The drawings accompanying the tender document are of indicative nature and issued for tendering purpose only. Purpose of these drawings is to enable the tenderer to make an offer in line with requirements of the Employer. However, no extra claim whatsoever shall be entertained for any variation in the "Approved for Construction" and "Tender Drawings" regarding any changes/units. Construction shall be as per drawings / specifications issued / approved by the Engineer-in-Charge during the course of execution of work. Detailed construction drawings on the basis of which actual execution of work is to proceed will be furnished to the Contractor progressively based on the detailed construction program evolved after the award of work and also based on construction progress achieved.

Detailed working drawings on the basis of which actual execution of the works is to proceed, will be furnished from time to time during the progress of the work. The contractor shall be deemed to have gone through the drawings and bring to the notice of the Engineer – in – Charge discrepancies if any, therein before actually carrying out the work.

Copies of all detailed working drawings relating to the works shall be kept at the contractor's office on the site and shall be made available to the Engineer – in- Charge at any time during execution of the contract. The drawings and other documents issued by the Employer shall be returned to the Employer on completion of the works.

6.29. CONSTRUCTION EQUIPMENT

The contractor shall without prejudice to his overall responsibility to execute and complete the work as per specifications and Time schedule, progressively deploy adequate equipments and tools and tackles and augment the same as decided by the Engineer – in -Charge depending on the exigencies of the work so as to suit the construction schedule. The tenderer shall submit a list of construction equipments he proposes to deploy for the subject work along with deployment schedule. No construction equipment shall be supplied by the Employer. Tenderer to ensure deployment of suitable cranes and take all safety precautions during execution of work.

6.30. SITE ORGANISATION

The tenderer shall submit the details of organization proposed by him at site of work for the implementation of the works under the contract, together with bio-data of the key personnel. The

contractor shall however without prejudice to his overall responsibility to execute and complete the works as per specifications and time schedule progressively deploy adequate qualified and experienced personnel together with skilled / unskilled manpower and augment the same as decided by Engineer – in – Charge depending on the exigencies of work to suit the construction schedule without any additional cost to Employer.

6.31. CONSTRUCTION

6.31.1. Rules and Regulations

CONTRACTOR shall observe in addition to Codes specified in respective specification, all national and local laws, ordinances, rules and regulations and requirements pertaining to the WORK and shall be responsible for extra costs arising from violations of the same.

6.31.2. Procedures

Various procedures and method statements to be adopted by Contractor during the construction as required in the respective specification shall be submitted to Employer in due time for approval. No such construction activity shall commence unless approved by Employer in writing.

6.31.3. Field Inspection

CONTRACTOR shall have at all times during the performance of the WORK, competent superintendent on the premises. Any instruction given to such Superintendent shall be construed as having been given to the CONTRACTOR.

6.31.4. All the scaffolding materials to be used in the work shall be of **steel material** only.

6.32. TEMPORARY WORKS

All temporary works, ancillary works, enabling works, including dewatering of surface and subsoil water, preparing approaches and working areas, wherever required for execution of the work, shall be the responsibility of the Contractor, and the price quoted by them shall be deemed to have included the cost of such works.

6.33. EXISTING SERVICES / STRUCTURES

Structures, drains, pipes, cables, overhead wires and similar services encountered in the course of the works shall be guarded from injury by the CONTRACTOR at his own cost, so that they may continue in full and uninterrupted use to the satisfaction of the Employer. Should any damage be done by the CONTRACTOR to any structures, mains, pipes, cables or lines (whether above or below ground etc), whether or not shown on the drawings, the CONTRACTOR must make good or bear the cost of making good the same without delay to the satisfaction of the Engineer – in – Charge.

6.34. DISTINCTION BETWEEN FOUNDATION AND SUPERSTRUCTURE

To distinguish between work in foundations and specifications and superstructures, the following criteria shall apply:

- a. For all Equipment pedestals, silos, pipe racks, other foundations and RCC structures, Work done upto 300 mm level above finished grade level will be taken as work in foundations and work above this level will be treated as work in superstructures and payments would be made accordingly.
- b. All works upto level corresponding to ground floor level shall be treated as work in “Foundation and Plinth” and all works above the ground floor level shall be treated as “Work in Superstructure”.
- c. Irrespective of what has been stated above, all pavements, RCC retaining wall, all pipe sleepers and any similar item would be take as work done in foundations irrespective of locations, nomenclature and levels given anywhere.
- d. Where not specifically pointed out all works in cellars / sumps, tank pads, cable trenches or such similar items would be taken as work in foundations.

6.35. FRONTS FOR WORKS.

The work involved under this contract includes such works as have to be taken up and completed after other agencies on the job have completed their jobs. The contractor will be required and bound to take up and complete such works as and when the fronts are available for the same and no claim of any sort whatsoever shall be admissible to the contractor on this account. Only extension of time limit shall be admissible, if the availabilities of work fronts to the contractor are delayed due to any reasons not attributable to the Contractor.

6.36. HOUSEKEEPING:

It shall be the Contractor's responsibility to keep the work area clean and tidy always and shall be done on a day-to-day basis. Scrap, debris, oil spills, etc; generated during the course of work shall be disposed at the designated location as directed by the Employer and the transportation for this purpose shall be arranged by the Bidder at his cost.

6.37. UNQUOTED ITEMS:

The bidders to offer their competitive rates for each and every item listed in the Schedule of rates, the bidders who have not quoted for all the items as required in the SORs shall be liable for rejection.

6.38. ABNORMAL RATES

The Contractor is expected to quote rate for each items after careful analysis of costs involved for the performance of the complete item consisting all specifications and conditions of the contract. If it is noticed that the rates quoted by the tenderer for any items are unusually high (or) unusually low it will be sufficient cause for rejection of the tenderer unless the Employer is convinced about the reasonableness of the rate on scrutiny of the analysis for such rate to be furnished by the tenderer on demand. Not with standing anything there in stand, the rate once accepted by the employer shall be final and shall not be subject to any claim either on account of un-workability of rates or on any other ground whatsoever.

6.39. INSURANCE

6.39.1. Indemnity by the Contractor.

The contractor shall be responsible at all times during the currency of the contract for and shall defend, hold harmless and indemnify the Employer and or the Employer indemnified parties from and against any and all claims, liabilities, costs, damages and expenses (including court cost and legal fees) arising whether by way of indemnity or otherwise, in relation to any and all losses of every kind and nature resulting from damage to or loss or, loss of use or recovery, or destruction of property, or sickness, injury or death suffered by any personnel or consultant of the contractor, its affiliates, agents or sub-contractors and damage to or loss or, loss of use or recovery or destruction of any property or equipment belonging or contracted to or otherwise in the custody of the contractor its affiliates, agents or sub-contractors or its or their personnel or consultants (other than Employer equipment) in connection with the performance of this contract.

6.39.2. Contractor's Personnel and Property.

The contractor shall be liable for and shall indemnify the Employer, the participants and Employer's personnel from and against all claims in respect of any death or injury or contractor's personnel and any damage to contractor's property in each case caused by or arising out of the performance of this contract and whether or not arising in respect of a serious event. The assumption of liability and the indemnity contained in this clause extends to any claims made against the Employer pursuant to any provision of any agreement, whenever effective, under which Employer assumes liability in respect of and or indemnifies and or otherwise compensates any other person or body in respect of the death or injury of contractor's personnel and any damage to contractor's property arising in respect of a serious event.

All contractor's personnel which may include permanent, temporary or casual, servants, agents and / or representatives, contractual or otherwise, either contractor's and / or their sub-contractors, affiliates / subsidiaries / co-ventures shall be covered under contractor's workers compensation of statutory benefits and any damages or

compensation payable in respect of accidents of injury as set forth and required by applicable law in the area of operations or such other jurisdiction under which contractor may become obligated to pay benefits.

6.39.3. Personnel Injury And Property Damages.

Contractor shall indemnify and hold harmless the indemnified all claims resulting from personal injury to any personnel, Employees, sub-contractors or agents of contractor or damage to any property of contractor or any Employees or agent or sub-contractors arising out of the performance of the services, whether or not the personnel injury or damage to property is caused by or contributed to by the negligence or other legal fault of the indemnified.

Contractor shall further indemnify and hold harmless the indemnified against all claims resulting from personal injury to any person (s) (other than employee or agent of contractor or employee or agent of Employer) or damage to any property to the extent that the personal injury or damage is contributed to by negligence or other legal fault of the contractor.

6.39.4. Third party and third party property.

Third party liability insurance shall be provided for liability arising from all operations of contractor including accidental / similar liabilities. The policy shall include coverage for premises and operations including operations off shore. It is expressly the term third party shall mean and include any person in other then that employed by contractor him self and shall not extend to any person in employment of Employer or sub-contractor / associates / affiliates / subsidiaries / co-ventures and or other similar agencies.

6.39.5. Due Diligence

Apart from complying with the various expressed conditions it is necessary for the contractor to take reasonable precautions:

- : For safety of the property insured.
- : In selection of labour
- : To prevent injury, loss or damage

It is also requires that the insured

- : To allow the insurer's access to examine the insured's premises plant and equipment
- : To minimize loss in the event of an accident.

6.39.6. Compliance With insurance Warranty:

The contractor is solely responsible for all the insurance warranties attached to the policies taken by him. The Employer should not be held responsible in any manner for non-compliance of the warranty.

6.39.7. Description Not Limitation:

The insurance coverage referred to the relevant clause connected with insurance indemnity shall Be set forth in full in the respective Policy forms, and the foregoing descriptions of such policies are not intended to be complete, nor to alter or amend any provision of the actual Policies and in matters, if any, in which the said description may be conflicting with such instruments, the provisions of the Policies of the insurance mutually agreed by the parties shall govern, provided, however, that neither the content of any Insurance Policy or Certificate nor Employer's approval thereof shall relieve the Contractor of any of its obligations under the Contract.

6.39.8. Any Other Insurance As Required Under Law:

CONTRACTOR shall also carry and maintain any and all other insurance(s) which may be required under any law or regulation from time to time without any extra cost to Employer. Contractor shall also carry and maintain any other insurance, which may be reasonably required

6.39.9. General Insurance Requirement.

All insurance's required under Clause shall be on terms and conditions issued by insurance companies or underwriters acceptable to the Employer.

6.39.10. Non Performance Of Contractors Insurance Companies:

The insolvency, liquidation, bankruptcy or failure of any insurance company providing insurance for Contractor or its sub-contractors or failure or denial of any such insurance Company to pay claims accruing, shall not be considered a waiver of, nor shall it excuse Contractor from complying with, any of the provisions of this Contract. Nevertheless, such liability shall be to the sole account of the Contractor.

6.39.11. Failure to Provide Required Insurance:

In the event that Employer reasonably disapproves of the insurance companies concerned, or if any of the insurance policies be not procured or maintained pursuant to Employer, at its option, may notify contractor that the failure to provide the insurance is a material omission whereupon it is agreed that Employer, at its sole option, shall have the right either to purchase similar coverage, the cost thereof to be reimbursed forthwith by Contractor to Employer, or alternatively, to be deducted by the Employer from any sum due or thereafter becoming due to contractor from Employer whether under this contract or any other contract to which both Employer and contractor are parties. In any case, the liability in such situations shall be to the sole account of the Contractor. Employer, exercising right to take appropriate policy under the above situation will in no way make themselves liable even if there is any deficiency in the policy so availed of.

6.39.12. No Limitation of Liability:

The required coverage referred to and set forth in the relevant Clause shall in no way affect or limit Contractor's liability with respect to performance of the work or any obligation under the Contract.

6.39.13. Period of the Insurance:

The contractor shall take the required insurance cover as above for this work and shall Effective from the date of signing of agreement with the Employer. Policies shall be renewed regularly till the completion of work in all respects.

6.39.16 CONTRACT DOCUMENT: The following shall form the contract documents:

- a) Statement of Agreed Variations, if any.
- b) The detailed Letter of Acceptance along with its enclosures.
- c) Fax of Acceptance awarding the works to the contractor.
- d) Addendum/Corrigendum to tender documents issued, if any.
- e) Original tender documents issued with its enclosures.

All other documents and correspondence exchanged prior to issue to Fax of Acceptance/ Letter of Acceptance whichever is earlier, shall be treated as null and void.

6.39.17 UNDERTAKING.

The bidder shall give an under taking that he has read the SCC and GCC and other terms and conditions of the bid document and agree to abide by all terms and conditions stipulated in the bid document. Also the bidders have to confirm that none of their personnel working in the bidders organization is / area relative of any chairman / Director/ employee or member of SBI / or a Director / Partner of the bidder's company or member of SBI / or a Director / Partner of the bidder's company / Organization / partnership / proprietary concern in any way.

6.40. SUBLETTING OF WORK:

The successful bidder is expected to execute majority of the jobs with their own work force and shall be covered under their company rolls. The tender shall indicate clearly in his offers the works he intends to sublet to the sub-contractors. the contractor from time to time propose any addition or deletion to the list and will submit proposals in

the regard to the EIC for approval well in advance well in advance so as not to impede the progress of work. such approval of the EIC will not relieve the contractor from any of his obligations, duties and responsibilities under the contract. In case of sub-letting of work either through SBI enlisted contractors or through other agencies, the contractor shall submit necessary documents about the background, technical & financial capabilities of the Sub-contractor and prior approval shall be obtained.

6.41 SUB CONTRACTOR:

At the commencement of the job the contractor shall supply to the EIC the list of all Sub-contractors or other persons or firms engaged by the contractor to work at the site. Any tenderer who had submitted the bid and pre-qualified for this tender and does not get the contract because of his being not the lowest will be prohibited from working as a sub-contractor for execution of this contract.

6.42 REVIEW MEETINGS AFTER AWARD OF WORK:

The Contractor shall present the programme and status at various review meetings as required.

6.42.1 Weekly Review Meeting:

Level of participation: Contractor's Site in charge and job Engineers.

Agenda:

- a. Weekly programme v/s actual achieved in the past week and programme for next week.
- b. Remedial Actions and hold up analysis.
- c. Employer query/approval
- d. Safety compliance

6.42.2 Monthly Review Meeting :

Level of Participation: Senior Officers of SBI and contractors.

Agenda:

- a. progress status / Statistics.
- b. Completion Outlook.
- c. Major hold ups / slippages.
- d. Assistance required.
- e. Criteria issues.
- f. Employer query/approval.
- g. safety compliance.

6.43. PROGRESS REPORTS TO BE FURNISHED AFTER AWARD OF WORK :

6.43.1 Monthly progress Report:

This report shall be submitted on a monthly basis within ten calendar days from cut-off date as agreed upon, covering overall scenario of the work. the report shall include but not be limited, to the following.

- a) Brief introduction of the work.
- b) Activities executed/achievements during the month.
- c) schedule v/s actual percentage progress & material stocks, resource allocation and overall work.
- d) Areas of concern/problem/hold ups, impact and action plan.
- e) Resources deployment status.
- f) Safety compliance report
- g) Distribution: SBI: Three copies

6.43.2 Weekly Report

This report (3 copies) will be prepared and submitted by the contractor on weekly basis and will cover following items:

- a) Activities programmed and completed during the week.
- b) Resource deployed men and machine.
- c) Qty. achieved against target in construction.
- d) Record of Man-days lost.

Signature of the Contractor

- e) Percentage progress, schedule and actual.
- f) safety compliance report.

6.44 TEST CERTIFICATES :

The contractor shall submit the certificates for every batch of materials from recognized laboratories / agencies for approval of the EIC.

6.45 WORKMANSHIP:

The contractor shall maintain workmanship of different items with an idea of providing trouble-free services to the users of different facilities. For this, it is expected that different fittings/fixtures after installation should not need attendance for a period 12 (Twelve) months and throughout the contract period the same has to be attended by the contractor at no extra cost to the Employer. All cement works shall have to be adequately cured as per relevant codes with no extra cost to the Employer.

6.46. SUPERVISION:

The contractor shall have to engage sufficient number of skilled persons to supervise and execute the work. The contractor shall solely be responsible for any defective construction/rectification as a result of poor supervision.

6.47. SPECIFICATIONS/ CODES AND STANDARDS:

All works under this Contract will be executed according to the specifications for works. Whenever the details are not specifically covered in the specifications, relevant provisions in the latest revision and/ or replacement of the Indian standard specifications (IS) or any other inter-national code of practice /CPWD specifications will be followed. The contractor shall have to procure copies of such codes/ standards for ready reference of his own personnel as well as the Engineers at site at his own cost and and without any additional reimbursement.

6.48 MATERIAL AND TRANSPORT:

All materials except mentioned otherwise in the items of the attached bill of quantities, for successful completion of work shall have to be procured and supplied by the successful tenderer at his own cost. The materials supplied by the contractor shall be of approved quality and approval also shall have to be taken from the Engineer at site before using the materials to the work. Rejected materials, if any, shall have to be removed by the contractor with his own labour and transport at his own cost immediately on receipt of the instruction.

6.49 CLEANING DURING EXECUTION AND AFTER COMPLETION:

On completion of the works the contractor shall reinstate and make good at his own expense any property or land which might have been disturbed and/or damaged by his works. He should also clean the site as required during execution and fully clear the site after completion of all the works. The contractor shall forward any usable materials found during the course of construction at the work site dispose of the debris all at his own expense by his own transport and labour and clean out all part of the work and leave everything clean and tidy to the entire satisfaction to the Engineer.

6.50 EXTRA ITEMS RATES :

The work or extra items shall be started only after the approval of extra items rates by Employer / Architect. Rates for additional or extra items of construction work, which can be derived from the contract item rates and are not covered in the contract, shall be calculated on the basis of actual cost plus 15% for profit and over heads. In case if similar works form a part of the tender the same shall be derive from such tenders rates.

7. SPECIAL CONDITIONS OF CONTRACT

7.1 CONTRACTOR NOT TO DEPOSIT MATERIALS IN A MANNER THAT MAY CAUSE INCONVENIENCE TO THE PUBLIC

The Contractor shall not deposit materials on any site which will seriously cause inconvenience to the public. The Employer may require the Contractor to remove any or all materials, which are considered by him to be a danger or inconvenience to the public or cause them to be removed at the Contractor's cost.

7.2 INFORMATION TO BE SUPPLIED BY THE CONTRACTOR

The Contractor shall furnish the Employer / Architect the following from time to time:

- 7.2.1 Detailed Industrial Statistics regarding the labour employed by him etc., every month (within 11th of succeeding month)
- 7.2.2 The Power of Attorney, name and signature of his authorized representative who will be in charge for the execution of the work.
- 7.2.3 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 the work.
- 7.2.4 The total quantity and quality of materials used for the works, every month within 5th of succeeding month.
- 7.2.5 The list of plant and machinery employed for this work every month.
- 7.2.6 Failure to submit any of these details in time, shall be treated as a breach of the contract and likely to result in, Levying a fine of. 1000/- for each default for each month and or Withholding payments, otherwise due
- 7.2.7 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 .8000/- per month for each month of default.
- 7.2.8 In all these matters the decision of the Architect shall be final and binding.

7.3 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 Employer/Architect and submit two copies of each photograph with minimum size 25cm x 40 cm to the Employer/Architect.

7.4 INSPECTION BY THE CHIEF TECHNICAL EXAMINERS (VIGILANCE)

The proposed work covered under this tender, during its 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 Employer/Architect 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, plumb bob, level etc., as required and directed and also necessary labour skilled, unskilled to enable them to complete their inspection / study / technical scrutiny and no extra shall be admissible to the Contractor on this account.

7.5. INCOME TAX

Income tax shall be deducted from the Contractors' bills rules and regulations in force in accordance with Income Tax Act prevailing from time to time. Quoted rates shall be deemed to include this.

7.6 GST : The quoted rates shall be Exclusive of GST.

7.7. FIRM PRICE

The prices shall be kept Firm till the completion of work and no escalation including statutory variation will be admissible.

7.8. DRAWINGS & DOCUMENTS

The drawings accompanying the tender document are of indicative nature and issued for tendering purpose only. Purpose of these drawings is to enable the tenderer to make an offer in line with requirements of the Employer. However, no extra claim whatsoever shall be entertained for any variation in the "Approved for Construction" and "Tender Drawings" regarding any changes/units. Construction shall be as per drawings / specifications issued / approved by the Architect during the course of execution of work. Detailed construction drawings on the basis of which actual execution of work is to proceed will be furnished to the Contractor progressively based on the detailed construction program evolved after the award of work and also based on construction progress achieved.

Detailed working drawings on the basis of which actual execution of the works is to proceed, will be furnished from time to time during the progress of the work. The contractor shall be deemed to have gone through the drawings and bring to the notice of the Engineer – in – Charge discrepancies if any, therein before actually carrying out the work.

Copies of all detailed working drawings relating to the works shall be kept at the contractor's office on the site and shall be made available to the Engineer – in- Charge at any time during execution of the contract. The drawings and other documents issued by the Employer shall be returned to the Employer on completion of the works.

7.9. CONSTRUCTION EQUIPMENT

The contractor shall without prejudice to his overall responsibility to execute and complete the work as per specifications and Time schedule, progressively deploy adequate equipments and tools and tackles and augment the same as decided by the Engineer – in -Charge depending on the exigencies of the work so as to suit the construction schedule. The tenderer shall submit a list of construction equipments he proposes to deploy for the subject work along with deployment schedule. No construction equipment shall be supplied by the Employer. Tenderer to ensure deployment of suitable cranes and take all safety precautions during execution of work.

7.10. SITE ORGANISATION

The tenderer shall submit the details of organization proposed by him at site of work for the implementation of the works under the contract, together with bio-data of the key personnel. The contractor shall however without prejudice to his overall responsibility to execute and complete the works as per specifications and time schedule progressively deploy adequate qualified and experienced personnel together with skilled / unskilled manpower and augment the same as decided by Engineer – in – Charge depending on the exigencies of work to suit the construction schedule without any additional cost to Employer.

7.11 TEMPORARY WORKS

All temporary works, ancillary works, enabling works, including dewatering of surface and subsoil water, preparing approaches and working areas, wherever required for execution of the work, shall be the responsibility of the Contractor, and the price quoted by them shall be deemed to have included the cost of such works.

7.12 EXISTING SERVICES / STRUCTURES

Structures, drains, pipes, cables, overhead wires and similar services encountered in the course of the works shall be guarded from injury by the CONTRACTOR at his own cost, so that they may continue in full and uninterrupted use to the satisfaction of the Employer. Should any damage be done by the

CONTRACTOR to any structures, mains, pipes, cables or lines (whether above or below ground etc), whether or not shown on the drawings, the CONTRACTOR must make good or bear the cost of making good the same without delay to the satisfaction of the Engineer – in – Charge.

7.13. DISTINCTION BETWEEN FOUNDATION AND SUPERSTRUCTURE

To distinguish between work in foundations and superstructures, the following criteria shall apply:

- a. For all Equipment pedestals, silos, pipe racks, other foundations and RCC structures, Work done upto 300 mm level above finished grade level will be taken as work in foundations and work above this level will be treated as work in superstructures and payments would be made accordingly.
- b. All works upto level corresponding to ground floor level shall be treated as work in “Foundation and Plinth” and all works above the ground floor level shall be treated as “Work in Superstructure”.
- c. Irrespective of what has been stated above, all pavements, RCC retaining wall, all pipe sleepers and any similar item would be take as work done in foundations irrespective of locations, nomenclature and levels given anywhere.
- d. Where not specifically pointed out all works in cellars / sumps, tank pads, cable trenches or such similar items would be taken as work in foundations.

7.14. FRONTS FOR WORKS.

The work involved under this contract includes such works as have to be taken up and completed after other agencies on the job have completed their jobs. The contractor will be required and bound to take up and complete such works as and when the fronts are available for the same and no claim of any sort whatsoever shall be admissible to the contractor on this account. Only extension of time limit shall be admissible, if the availabilities of work fronts to the contractor are delayed due to any reasons not attributable to the Contractor.

7.15. HOUSEKEEPING:

It shall be the Contractor’s responsibility to keep the work area clean and tidy always and shall be done on a day-to-day basis. Scrap, debris, oil spills, etc; generated during the course of work shall be disposed/carted away to unobjectionable place and the transportation for this purpose shall be arranged by the Bidder at his cost.

7.16. ABNORMAL RATES

The Contractor is expected to quote the percentage rate after careful analysis of costs involved for the performance of the complete the work consisting all specifications and conditions of the contract. If it is noticed that the rates quoted by the tenderer is unusually high (or) unusually low it will be sufficient cause for rejection of the tenderer unless the Employer is convinced about the reasonableness of the rate on scrutiny of the analysis for such rate to be furnished by the tenderer on demand. Notwithstanding anything there in stand, the rate once accepted by the employer shall be final and shall not be subject to any claim either on account of un- workability of rates or on any other ground whatsoever.

7.17. INSURANCE

7.17.1. Indemnity by the Contractor.

The contractor shall be responsible at all times during the currency of the contract for and shall defend, hold harmless and indemnify the Employer from and against any and all claims, liabilities, costs, damages and expenses (including court cost and legal fees) arising whether by way of indemnity or otherwise, in relation to any and all losses of every kind and nature resulting from damage to or loss or, loss of use or recovery, or destruction of property, or sickness, injury or death suffered by any personnel or consultant of the contractor, its affiliates, agents or sub-contractors and damage to or loss or, loss of use or recovery or destruction of any property or equipment belonging or contracted to or otherwise in the custody of the

contractor its affiliates, agents or sub-contractors or its or their personnel or consultants (other than Employer equipment) in connection with the performance of this contract.

7.17.2. Contractor's Personnel and Property.

The contractor shall be liable for and shall indemnify the Employer, the participants and Employer's personnel from and against all claims in respect of any death or injury or contractor's personnel and any damage to contractor's property in each case caused by or arising out of the performance of this contract and whether or not arising in respect of a serious event. The assumption of liability and the indemnity contained in this clause extends to any claims made against the Employer pursuant to any provision of any agreement.

All contractor's personnel which may include permanent, temporary or casual, servants, agents and / or representatives, contractual or otherwise, either contractor's and / or their sub-contractors, affiliates / subsidiaries / co-ventures shall be covered under contractor's workers compensation of statutory benefits and any damages or compensation payable in respect of accidents of injury as set forth and required by applicable law in the area of operations or such other jurisdiction under which contractor may become obligated to pay benefits.

7.17.3. Due Diligence

Apart from complying with the various expressed conditions it is necessary for the contractor to take reasonable precautions:

: For safety of the property insured.

: In selection of labour

: To prevent injury, loss or damage

It is also requiring that the insured

: To allow the insurer's access to examine the insured's premises plant and equipment

: To minimize loss in the event of an accident.

7.17.4. Compliance With insurance Warranty:

The contractor is solely responsible for all the insurance warranties attached to the policies taken by him. The Employer should not be held responsible in any manner for non-compliance of the warranty.

7.17.5. Any Other Insurance As Required Under Law:

CONTRACTOR shall also carry and maintain any and all other insurance(s) which may be required under any law or regulation from time to time without any extra cost to Employer. Contractor shall also carry and maintain any other insurance, which may be reasonably required

7.17.6. General Insurance Requirement.

All insurance's required under Clause shall be on terms and conditions issued by insurance companies or underwriters acceptable to the Employer.

7.17.7. Non Performance Of Contractors Insurance Companies:

The insolvency, liquidation, bankruptcy or failure of any insurance company providing insurance for Contractor or its sub-contractors or failure or denial of any such insurance Company to pay claims accruing, shall not be considered a waiver of, nor shall it excuse Contractor from complying with, any of the provisions of this Contract. Nevertheless, such liability shall be to the sole account of the Contractor.

7.17.8. Failure to Provide Required Insurance:

In the event that Employer reasonably disapproves of the insurance companies concerned, or if any of the insurance policies be not procured or maintained pursuant to Employer, at its option, may notify contractor that the failure to provide the insurance is a material omission whereupon it is agreed that Employer, at its sole option, shall have the right either to purchase similar coverage, the cost thereof to be reimbursed forthwith by Contractor to Employer, or alternatively, to be deducted by the Employer from any sum due or thereafter becoming due to contractor from Employer whether under this contract or any other contract to

which both Employer and contractor are parties. In any case, the liability in such situations shall be to the sole account of the Contractor. Employer, exercising right to take appropriate policy under the above situation will in no way make themselves liable even if there is any deficiency in the policy so availed of.

7.17.9. No Limitation of Liability:

The required coverage referred to and set forth in the relevant Clause shall in no way affect or limit Contractor's liability with respect to performance of the work or any obligation under the Contract.

7.17.10. Period of The Insurance:

The contractor shall take the required insurance cover as above for this work and shall Effective from the date of signing of agreement with the Employer. Policies shall be renewed regularly till the completion of work in all respects.

7.18 UNDERTAKING.

The bidder shall give an under taking that he has read the SCC and GCC and other terms and conditions of the bid document and agree to abide by all terms and conditions stipulated in the bid document. Also the bidders have to confirm that none of their personnel working in the bidders organization is / are relative of any chairman / Director/ employee or member of SBI / or a Director / Partner of the bidder's company or member of SBI / or a Director / Partner of the bidder's company / Organization / partnership / proprietary concern in any way.

7.19 SUB CONTRACTOR :

At the commencement of the job the contractor shall submit to the Architect/Employer the list of all Sub-contractors or other persons or firms to be engaged by the contractor to work at the site. Any tenderer who had submitted the bid for this tender and does not get the contract because of his being not the lowest will be prohibited from working as a sub-contractor for execution of this contract.

7.20 REVIEW MEETINGS AFTER AWARD OF WORK :

The Contractor shall present the programme and status at various review meetings as required.

7.20.1 Weekly Review Meeting:

Level of participation: Contractor's Site in charge and job Engineers.

Agenda:

- a. Weekly programme v/s actual achieved in the past week and programme for next week.
- b. Remedial Actions and hold up analysis.
- c. Employer query/approval
- d. Safety compliance

7.20.2 Monthly Review Meeting :

Level of Participation :Contractor, Architect and Senior Officers of SBI

Agenda:

- a.progress status / Statistics.
- b.Completion Outlook.
- c.Major hold ups / slippages.
- d.Assistance required.
- e.Criteria issues.
- f.Employer query/approval.
- g.safety compliance.

7.21 PROGRESS REPORTS TO BE FURNISHED AFTER AWARD OF WORK:

7.21.1 Monthly progress Report:

This report shall be submitted on a monthly basis within ten calendar days from cut-off date as agreed upon, covering overall scenario of the work. the report shall include but not be limited, to the following.

Signature of the Contractor

- a) Brief introduction of the work.
- b) Activities executed/achievements during the month.
- c) schedule v/s actual percentage progress & material stocks, resource allocation and overall work.
- d) Areas of concern/problem/hold ups, impact and action plan.
- e) Resources deployment status.
- f) Safety compliance report
- g) Distribution: SBI: Three copies

7.21.2 Weekly Report

This report (3 copies) will be prepared and submitted by the contractor on weekly basis and will cover following items:

- a) Activities programmed and completed during the week.
- b) Resource deployed men and machine.
- c) Qty. achieved against target in construction.
- d) Record of Man-days lost.
- e) Percentage progress, schedule and actual.
- f) safety compliance report.

7.22 TEST CERTIFICATES :

The contractor shall submit the certificates for every batch of materials from recognized laboratories / agencies for approval of the Architect

7.23 WORKMANSHIP:

The contractor shall maintain workmanship of different items with an idea of providing trouble-free services to the users of different facilities. For this, it is expected that different fittings/fixtures after installation should not need attendance for a period 12 (Twelve) months and throughout the contract period the same has to be attended by the contractor at no extra cost to the Employer. All cement works shall have to be adequately cured as per relevant codes with no extra cost to the Employer.

7.24. SUPERVISION:

The contractor shall have to engage sufficient number of skilled persons to supervise and execute the work. The contractor shall solely be responsible for any defective construction/rectification as a result of poor supervision.

7.25 SPECIFICATIONS/ CODES AND STANDARDS:

All works under this Contract will be executed according to the specifications for works. Whenever the details are not specifically covered in the specifications, relevant provisions in the latest revision of the Indian standard specifications (IS) or CPWD specifications will be followed. The contractor shall have to procure copies of such codes/ standards for ready reference of his own personnel as well as the Engineers at site at his own cost and without any additional reimbursement.

7.26 MATERIAL AND TRANSPORT:

All materials for successful completion of work shall have to be procured and supplied by the successful tenderer at his own cost. The materials supplied by the contractor shall be of approved quality and approval also shall have to be taken from the Architect before using the materials to the work. Rejected materials, if any, shall have to be removed by the contractor with his own labour and transport at his own cost immediately on receipt of the instruction.

7.27 CLEANING DURING EXECUTION AND AFTER COMPLETION:

On completion of the works the contractor shall reinstate and make good at his own expense any property or land which might have been disturbed and/or damaged by his works. He should also clean the site as required during execution and fully clear the site after completion of all the works. The contractor shall forward any usable materials found during the course of construction at the work site dispose of the debris all at his own expense by his own

transport and labour and clean out all part of the work and leave everything clean and tidy to the entire satisfaction of Architect/Employer.

7.28 EXTRA ITEMS RATES :

The work or extra items shall be started only after the approval of extra items rates by Employer / Architect. Rates for additional or extra items of construction work, which can be derived from the contract item rates and are not covered in the contract, shall be calculated on the basis of actual cost plus 15% for profit and over heads. In case if similar works form a part of the tender the same shall be derive from such tenders rates.

7.29 FAIR WAGES

The fair wage rates for all categories of employees/labours should be as per prevailing in the district on the date of receipt of tender/work order and any notification subsequently published by the respective State Government/Central Government.

7.30 MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS EMPLOYED BY CONTRACTORS

7.30.1 "Work Place" means a place at which, at an average 50 or more workers are employed in connection with construction work.

7.30.2 "Large Work Place" means a place at which, at an average 500 or more workers are employed in connection with construction work.

7.30.3 At every work place, there shall be maintained in a readily accessible place first aid appliance including an adequate supply of sterilized dressings and sterilized cotton wool. The appliances shall be kept in good order and, in large work place they shall be placed under the charge of a responsible person who shall be readily available during the working hours.

7.30.4 At large work places, where hospital facilities are not available within easy distance of the work. First Aid post shall be established and be run by a trained compounder.

7.30.5 Where large work places are remote from regular hospitals, indoor ward shall be provided with one bed for every 250 employee.

7.30.6 Where large work places are situated in cities, in towns or in their suburbs and no beds are considered necessary owing to the proximity of city or town hospitals, suitable transport shall be provided to facilitate removal of urgent cases to the hospitals. At other work places, some conveyance facilities, such as a car, shall be kept readily available to take injured person or persons suddenly taken seriously ill to the nearest hospital.

7.30.7 In every work place, there shall be provided and maintained at suitable places easily accessible to labour, a sufficient supply of cold water fit for drinking.

7.30.8 Where drinking water is obtained from an intermittent public water supply, each work place be provided with storage where such drinking water shall be stored.

7.30.9 Every water supply storage shall be at a distance of not less than 15m. from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door which shall be dust and water proof.

7.30.10 A reliable pump shall be fitted to each covered well the trap-door shall be kept locked and opened only for cleaning or inspection which shall be done at least once in a month.

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

7.30.12 Scale of Accommodation in Latrines and Urinals:

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

No. of Seats

Where the number of persons does not exceeds 50, 2

Where the number of persons exceeds 50 3

but does not exceed 100

For every additional 100 3 per 100

7.30.13 Latrines and Urinals for Women:

If women are employed separate latrine and urinals, screened from those of men and marked in the vernacular in conspicuous letter. "For Women Only" shall be provided on the scale laid in 6.0. Those for men shall be similarly marked "For Men Only". A poster showing the figure of a man and a woman shall also be exhibited at the entrance of latrines for each sex. There shall be adequate supply of water close to the urinals and latrines. laid in 6.0 Those for men shall be similarly marked "For Men Only". A poster showing the figure of a man and a woman shall also be exhibited at the entrance of latrines for each sex. There shall be adequate supply of water close to the urinals and latrines.

7.30.14 Latrines and Urinals:

Except in work places provided with water flushed latrines connected with a water borne sewerage system, all latrines shall be provided with receptacles on dry earth system which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. The receptacles shall be tarred inside and outside at least once a year.

7.30.15 Construction of Latrines:

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

7.30.16 Disposal of Excreta:

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

7.30.17 Provision of Shelters during rest:

At every work place there shall be provided, free of cost, two suitable sheds one for meals and the other for rest separately for men and women for the use of labour. The height of the shelter shall not be less than 11 feet from the floor-level to the lowest part of the roof. The sheds should be roofed with at least thatch and mud flooring will be provided with a dwarf wall around not less than 750mm. Sheds should be kept clean and the space should be on the basis of at least 0.50 Square meters per head.

7.30.18 Creches:

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

7.30.18.1 Thatched roofs:

7.30.18.2 Mud floor and walls:

Planks - spread over the mud floor and covering matting. The huts shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the place clean. There shall be two ayahs in attendance. Sanitary utensils shall be provided to the satisfaction of the Health Officer of the area concerned. The use of the hut shall be restricted to children their attendants and mothers of the children.

Where the number of women workers is more than 25 but less than 50, the Contractor shall provide at least one hut and one ayah to look after the children of women workers.

The size of creche or creches shall vary according to the number of women workers.

The creches or creche shall be properly maintained and necessary equipment like toys, etc. shall be provided.

7.30.19 Canteen:

A cooked food canteen on a moderate scale shall be provided for the benefit of workers where ever it is considered expedient.

7.30.20 The above rule shall be incorporated in the contracts and in notices inviting tenders and shall form an integral part of the contract.

9.0 SAFETY CODE

9.1 Scaffolds:

9.1.1 Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as 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 material as well, suitable footholds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1/4 to 1 (1/4 horizontal and 1 vertical)

9.1.2 Scaffolding or staging more than 4m. above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached bolted, braced and otherwise secured at least 3 feet high above the floor or platform of such scaffoldings or staging and extending along the entire length of the outside and ends there of with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

9.1.3 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 the ground level on the floor level. They shall be closely boarded, should have adequate width and should be suitably fastened, as described in (ii) above.

9.1.4 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 1m. Wherever there are open excavations in ground, they shall be fenced off by suitable railing and danger signals installed at night so as to prevent persons slipping into the excavations.

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

9.1.6 A sketch of the ladders and scaffolds proposed to be used shall be prepared and approval of the Engineer-in-charge obtained prior to construction.

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

9.1.8 Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

9.2 Excavation and Trenching:

9.2.1 All trenches, 1.25m or more in depth, shall at all times be supplied with at least one ladder for each 30m in length or fraction thereof. Ladder shall be extended from bottom of the trench to at least 1m. above the surface of the ground. The side of the trench which are 1.5m or more shall be sloped back to give suitable slope or securely held by timber bracing, so as to avoid the dangers of sides to collapse. The excavated material shall not be placed within 1.5m. of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

9.2.2 The Contractor shall take all measures on the site of work to protect the public from accidents 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 any such persons or which may with the consent of the Contractor, be paid to compromise any claim by any such person.

9.3 Demolition:

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

9.3.1.1 All roads and open areas adjacent to work site shall either be closed or suitably protected;

9.3.1.2 No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.

9.3.1.3 All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

9.4 Personal Safety Equipments:

9.4.1 All necessary personal safety equipment as considered adequately by the Engineer should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the Contractor should take adequate steps to ensure proper use of equipment by these concerned.

9.4.2 Worker employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

9.4.3 Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes shall be provided with protective goggles.

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

9.4.5 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 at least for an hour before the workers are allowed to get into the manholes and manhole's so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public.

9.4.6 The Contractor shall not employ men below age of 18 years and women on the work of painting with products containing lead in any form. Where ever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken.

9.4.5.1 No paint containing lead or products shall be used except in the form of paste or readymade paint.

9.4.5.2 Overalls shall be supplied by Contractors to the workmen and adequate facilities shall be provided to enable the worker painters to wash during the cessation of work.

9.4.6 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 provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work

9.5 Hoisting Machines:

9.5.1 Use of hoisting machines and tackle including their attachment, anchorage and supports shall conform to the following standards or conditions:

9.5.1.1 These shall be good mechanical construction, sound material and adequate strength and free from patent defect and shall be kept in good repair and in good working order.

9.5.1.2 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.

9.5.2 Every crane driver or hoisting applications 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 which give signals to operator.

9.5.3 In case of every hoisting machine and of every chain, hook, shackle swivel and fully block used in hoisting or as means of suspension for 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 of the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

9.5.4 In case of department machines, the safe working load shall be notified by the Engineer-in-Charge. As regards Contractor's machines the Contractor shall notify the safe working load to the machine to the Engineer-in-Charge whenever he brings any machinery to site of work and get it verified by the Engineer-in-charge concerned.

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

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

9.5.6 To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by that Contractor shall be open to inspection by the Labour Officer, Engineer-in-Charge of the department or their representatives.

Notwithstanding the above clauses from 9.5.1 to 9.5.5 there is nothing in these to exempt the Contractor from the operation of any other Act or Rule in force in the Republic of India.

GENERAL SPECIFICATIONS – INTERIOR WORKS.

TIMBER :

All timbers used are to be of top quality, free from knots, shakes, wormholes, and with a moisture content of not more than 8% to 10% depending on the climatic conditions prevailing at the site.

JOINTS :

All Joints will be standard mortise and tenon, dovetails, dowel, cross-halved, mitred, tongued and grooved and invited. Nailed or glued butt joints will not be permitted. Except in exceptional cases nailed butt joints will not be accepted.

FASTENINGS :

Screws , nails, bolts, will generally be of M.S. G. I wire, except in following examples : "Out door Furniture" fastenings will be of brass or other non-Corrosive metal. In hardware, they will match the finish of the hardware item.

Brass Nails in a finished surface shall be neatly punched and the hole filled with wood filler matching the finish. Screws in a finished surface will be round head, raised head or sunk (beneath the surface and the hole plugged with matching colour and grain of the wood surface) unless specially detailed.

PLYWOOD :

Used mainly for the bodywork of this furniture, shall be Luaan or similar close-grained plywood suitable for veneering painting or bounding plastic laminate. It will be a resin bonded (PFB) weatherproof brand, and for "out door" furniture, standard specifications, ' marine' 'Mysore ply ', 'Anchor ply ' or Indian plywood brand or equivalent. Exposed edges will be finished with a piece of soiled wood, tongued and grooved and glued or as detailed.

HARDWARE :

Hinges, lock, latches, door tracks etc., shall be as specified and as far as it possible, by the manufacturer specified. In any variation of this the quality of the substitute shall be equal to or better than the original specified, and sampled should be submitted to the Designer for prior approval.

METAL :

Where metal logs frames etc., are used these shall be welded, brazed, bolted or riveted as required and on finished surfaces. Welding, brazing riveting shall be neatly smoothed so that no evidence of this is apparent on the final finish of the metal, which will be as specified on drawing. On all legs, wood or metal, nylon glides or castor as indicated are to be installed.

FINISH :

This will be as indicated on the drawing and colour scheme chart and materials (timber, plastic laminates, lacquer, paints, etc.,) must be specified. No variations will be accepted unless with the prior approval of the Designer. " Backs " of cabinets etc., where wall hung, shall be treated with an approved brand of wood preservative. Full size drawings or sample prototypes are to be submitted for approval as requested.

Note: This specification is of a general type only and must be used in conjunction with the drawing of the particular item being made. Anything shown on the drawing, but not in the specification must be complied with, and vise versa.

MATERIALS:

Finished timber shall be of the type specified colour, pattern, substance to be as specified and manufactured or supplied by the company specified. No variation of this will be permitted unless with prior approval of the Designer.

FINISH:

This will be as specified on the drawing and colour scheme chart. Where timber is finished in natural colour, care must be taken to "match" each separate piece of colour before assembly. Where timber is stained, the stain or colour on each member must "match".

TECHNICAL SPECIFICATIONS FOR ELECTRICAL WORKS
CHAPTER 1
INTERNAL ELECTRIFICATION

1.0 Scope :

This specification is intended to cover the requirements of supply, installation, testing and commissioning of electrical wiring installation and other accessories required for its satisfactory operation. This covers the essential requirements or precautions regarding wiring installations for ensuring satisfactory and reliable service.

2.0 Standards :

The Electrical wiring installations and other accessories shall comply with latest IS : 732 - 1989 and National Electrical code - 1985.

3. Construction

Wall mounted switch boards shall be installed such that the bottom is at a minimum height of 1.35 m above finished floor level wherever applicable, as indicated in the drawing.

Equipment which is on the front of a switch board shall be so arranged that inadvertent personnel contact with live parts is unlikely during the manipulation of switches, changing of fuses or similar operation.

In every case in which switches and fuses are fitted on the same pole, these fuses, shall be so arranged that the fuses are not live when their respective switches are in 'OFF' position.

No fuses other than fuses in instrument circuit shall be fixed on the back or behind a switch board panel or frame.

4. Capacity of circuit :

Lighting Circuits shall not have more than a total of ten points of fans, 5A socket outlets and light points and its total load shall not exceed 800 watts. Lights, fans, and 5A socket outlets can be wired on a single common circuit. If fan circuit is drawn separately, circuit shall not be used more than eight points and load shall not exceed more than 800 watts. In the circuit, the neutral and earth wires can be looped up to 10points. From distribution boards Neutral & Earth wires shall be run for every circuit.

The power circuits shall not have more than two outlets per circuit if load to be fed by each outlet is less than 1KW, and if load is more than 2KW, each outlet shall be connected to a separate circuit.

Switches : All switches shall be placed in the live conductor of the circuit and no single pole switch or fuse shall be inserted in the earth or earthed neutral conductor of the circuits. Single pole switches (other than for multiple control) carrying not more than 15amperes may be of the piano flush type and the switch shall be 'ON' When the knob is down.

Lamp holders : Lamp holders for use on brackets and the like shall have not less than 1.3 cm nipple and all those for use with flexible pendant shall be provided with cord grips. All lamp holders shall be provided with shade carriers. Where centre contact Edison screw lamp holders are used, the outer or screw contact shall be connected to the 'middle wire' or the neutral or to the earthed conductor of the circuit.

Lamps : All incandescent lamps, unless otherwise specified shall be hung at a height of not less than 2.5 m above the finished floor level.

Ceiling rose : a) A ceiling rose or any other similar attachment shall not be used on circuit, the voltage of which normally exceeds 250 volts.

A ceiling rose shall not embody fuse terminals as an integral part of it.

Every socket outlet shall be controlled by a switch. The switch controlling the socket shall be on the 'live' side of

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side line. 5 Amps and 15 Amps socket-outlet shall normally be fixed at any convenient place 60 cm above the floor level or near such level as indicated in drawing. 15 Amps socket outlets in kitchen shall be fixed at convenient place 23cm above the working platform. In a room containing a fixed bath or shower, there shall be no socket outlet and there shall be no provision for connecting a portable appliance.

5 Recessed MS conduit wiring system

a) Making of chase : The chase in the wall shall neatly be made and shall be of suitable dimension to permit the conduit to be fixed in the manner desired by the Engineer-in-charge. In the case of buildings under construction, chases shall be provided in the wall, ceiling, etc. at the time of their construction and shall be filled up neatly after erection of conduit and brought to the original finish of the wall.

b) Fixing of conduit in chase : The conduit shall be fixed by means of staples or by means of saddles not more than 600 mm apart. Fixing of standard bends or elbows shall be avoided as far as practicable and all curves maintained by bending the conduit pipe itself with a long radius which will permit easy drawing-in of conductors. All the threaded joints of rigid steel conduits shall be treated with approved preservative compound to ensure protection against rust.

c) Inspection boxes : To permit periodical inspection and to facilitate replacement of wires, suitable inspection boxes shall be provided at convenient locations. They shall be mounted in flush with the wall. The minimum size of inspection boxes shall be 75 x 75 mm. Suitable ventilating holes shall be provided in the inspection box covers.

d) Types of accessories to be used : All outlets, such as switches and sockets, may be either of flush mounting type or of surface mounting type.

The switches and other outlets shall be mounted on such boxes. The metal box shall be efficiently earthed with the earth continuity wire run along the conduit.

When crossing through expansion joints in buildings, the conduit sections across the joint may be through flexible copper bellows of the same size as PVC conduit. The Number of wires that can be drawn through a conduit shall be strictly as per IS 732 and as mentioned in Drawings.

6. MS Conduits :

MS conduit shall be black enameled and of thickness not less than 16SWG and of size minimum 19 mm dia. The Conduit shall conform to IS 9537/ Part II

Bunching of cables : Separate conduits shall be used for bunching of conductors of AC supply and DC supply for lighting and small power outlet circuits.

All outlets of conduit systems shall be properly drained and ventilated, but in such a manner so as to prevent the entry of insects etc. as far as possible.

Bends in conduit : Wherever necessary, bends or diversions may be achieved by bending the conduits or by employing normal bends, inspection bends, inspection boxes, elbows or similar fittings.

In case of plain conduit, heat may be used to soften the conduit for bending and forming joints. Positioning of conduit in close proximity to hot surfaces should be avoided.

7. TESTING OF WIRING:

The following tests shall be carried out on all types of wiring on completion of the work and before energizing the installation :

- i) Insulation resistance test,
- ii) Electrical continuity test,

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iii) Earth continuity test,

iv) Earth electrode resistance test,

v) Switch polarity test.

i) Insulation Resistance test :

The insulation resistance shall be measured by using 500 v megger between the following points.

Phase and neutral conductor with all fuses in position and all switches in closed condition and main switch in OFF position with lamps and other devices removed.

Between earth and whole system of conductors with all fuses in place, all switches closed and all lamps in position.

Between all conductors connected to one phase of the supply of the above tests shall not be less than 50 divided by the number of points on the circuit. Where a whole installation is being tested, a lower value than that given by the above formula is acceptable subject to a minimum of one megaohm.

The insulation resistance in megaohm as obtained by each of the above tests shall not be less than 50 divided by the number of points on the circuit. Where a whole installation is being tested, a lower value than that given by the above formula is acceptable subject to a minimum of one megaohm.

(ii) Electrical continuity test :

Each and every circuit shall be tested for electrical continuity by using a multimeter.

(iii) Earth continuity test :

The earth continuity conductor including metal conduit shall be tested for electrical continuity and the resistance of the same along with the earthing lead measured from the connection with the earth electrode to any point in the earth continuity conductor in the complete installation shall not exceed one ohm.

iv) Earth electrode resistance test :

The earth electrode resistance shall be tested as specified in section

(v).Switch polarity test :

Test shall be made to verify that all switches in every circuit have been fitted in the same conductor throughout and such conductor shall be marked for connection to the phase conductor.

8 Distribution Boards :

All the distribution boards shall be with MCBs as described in the respective schedule.

The distribution boards shall be controlled by a switch fuse, miniature circuit breaker or an isolator as described in the respective schedule. Each outgoing circuit shall be provided either with MCB or a fuse on the phase. The neutral shall be connected to a common link and be capable of being disconnected individually for testing purposes.

The distribution boards shall be located as indicated in the respective electrical working drawings and as directed by Engineer - in - charge. The distribution boards shall be fixed on wall in the niche provided and marked with the details of circuits, source of supply, size of incoming wires Etc.,

All marking shall be clear and legible.

The total load of the consuming devices shall be evenly distributed between the number of ways of distribution board.

The consuming devices circuit shall be connected to distribution board in proper sequence, so as to avoid

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unnecessary crossing of wires.

Cables shall be connected to a terminal only by crimped lugs.

Cables shall be rigidly fixed in such a manner that a clearance of at least 2.5cm is maintained between conductors of opposite polarity or phase and between the conductors and any material other than insulating material.

The incoming and outgoing cables shall be neatly bunched.

9. MOUNTING HEIGHTS :

The Mounting heights of various fixtures shall be as specified in the Drawings.

CHAPTER 2

POWER CONTROL CENTRES

1.0 Scope :

This specification is to cover the requirement of design, supply, installation, testing and commissioning of LT power control centres / main switch boards with all components, Instruments, fittings and accessories for efficient operation without any trouble.

2.0 Standards :

The PCC specified herein, unless otherwise stated shall conform to the relevant and latest revisions of Indian standards and Indian Electricity Rules.

3.0 Design and construction :

3.1 Design requirements : The power control centres shall be suitable for operation on 440volt, 3 phase,4wire 50HZ system to withstand a short circuit level of 50 KA RMS symmetrical.

The PCC shall be designed for operation in high ambient temperature upto 45 degrees centigrade and high humidity upto 95% and tropical atmospheric conditions. Means shall be provided to facilitate ease of inspection, Maintenance and Servicing.

3.2 Constructional requirements :

The power control centre shall be of

- i) Metal clad, cubicle, indoor, free standing type suitable for Mounting on Built up Trenches with U Channels of adequate size.
- ii) Made up of the requisite vertical sections, which when coupled together shall form continuous dead front switch board.
- iii) Dust and damp protected, the degree of protection shall be better than IP - 54 as specified in IS-2147.
- iv) Readily extendable on both sides by the addition of vertical sections after removal of the end covers.
- v) Single front construction with the circuit breaker feeder and switch fuse feeders suitable for operation from the front of the panel.

The PCC shall have the feeder ratings as per the schematic diagrams enclosed with the schedule and constructed only of materials capable of withstanding the mechanical, electrical and thermal stresses as well as the effects of humidity, which are likely to be encountered in normal service.

3.3 Vertical Sections :Each vertical section shall comprise a front framed structure rolled folded sheet steel channel section of minimum 2 mm thickness rigidly bolted together. This structure shall house the components contributing the major weight of the equipment such as circuit breaker, switch fuse units, main horizontal busbars, vertical risers and other front mounted accessories. The structure shall be mounted on a rigid base frame of folded sheet steel of minimum of 2.5 mm thickness and 100mm height. The design shall ensure Structural stability during Transit and also during Operation after Commissioning Suitable cable chamber housing the cable end connections and power / control cable terminations shall be provided. The design shall ensure generous availability of space for ease of installation and maintenance of cabling and adequate safety for working in one vertical section without coming into accidental contact with live parts in the adjacent section.

A cover plate at the top of the vertical section shall be provided with necessary ventilating arrangements. Any aperture for ventilation shall be covered with a perforated sheet having less than 1 mm diameter perforations to prevent entry of vermin.

3.4 Sheet Steel Cubicle :

3.4.1 The sheet steel cubicle shall be designed in fully segregated multitier formation. Each cubicle shall have

hinged front access door with easy operating fasteners. All the doors and covers shall be heavily gasketed to make the compartment dust tight. Each cubicle shall have a covering at the bottom to make a dust and vermin proof construction. Door hinges shall be of concealed type.

The cubicle shall be of minimum 2 mm thick sheet steel. Sheet steel shrouds and partitions shall be of minimum 1.6 mm thickness. All sheet steel work forming the exterior of switch boards shall be smoothly finished, leveled and free from flaws. The corners shall be rounded. The minimum Thickness of Gland plates shall be 3mm.

3.4.2 The apparatus and circuits in the power control centers shall be so arranged as to facilitate their operation and maintenance at the same time to ensure the necessary degree of safety. Apparatus forming part of the control centers shall have the following minimum clearance.

- i) between phases - 25 mm,
- ii) between phase and neutral - 25 mm,
- iii) between phases and earth - 25 mm,
- iv) Between neutral and earth - 19 mm,

When, for any reason, the above clearances are not available suitable insulation shall be provided. Clearance shall be maintained during normal service conditions. Creepage distances shall comply with those specified in relevant standards.

3.4.3 All insulating materials used in the construction of the equipment shall be non hygroscopic duly treated to withstand the effect of high humidity, high temperature and tropical ambient service conditions.

3.4.4 Functional units such as circuit breakers and fuse switches shall be arranged in multitier formation, except that not more than One air circuit breaker housed in a single vertical section.

3.4.5 Metallic/insulated barriers shall be provided within vertical sections and between adjacent sections to ensure prevention of accidental contact with :

- i) Main busbars and vertical risers during operation, inspection or maintenance of functional units and front connected accessories.
- ii) Cable terminations of one functional unit, when working on those of adjacent unit/units.

3.4.6. All doors / covers providing access to live power equipment / circuits shall be provided with tool operated fasteners to prevent unauthorized access.

3.4.7 Provisions shall be made for permanently earthing the frames and other metal parts of the switchgear by two independent connections.

3.5 Metal treatment and finish :

All steel works used in the construction of the switch boards shall have undergone a suitable rigorous metal treatment process so as to remove oxide scales and rust formation and to facilitate a durable coating of the paint on the metal surfaces and also to prevent the spreading of rust, in the event of the paint film being mechanically damaged.

Two coats of Anti Corrosive primer followed by a finishing coat of Epoxy spray power coating of the shade 631 of IS : 5 (i.e. Siemens grey) shall be given. The total thickness of paint shall not be less than 25 micron.

3.6 Bus Bars :

3.6.1 The busbars shall be housed in non-segregated sheet steel compartments in the cubicle at convenient locations with provision for access to the buses from the front of the panel. The busbar shall be suitably braced with DMC/SMC supports to provide a through fault withstand capacity of 50 KA RMS symmetrical for one second and a peak short circuit withstand capacity 150 KA minimum. The neutral as well as the earth bus shall be capable of withstanding the above fault level.

3.6.3 Large clearance and creeping distance shall be provided on the busbar system to minimize the possibility of a fault.

3.6.4 High tension bolts, nuts and spring washers shall be provided at all busbar joints.

3.6.5 The continuous rating of the busbar shall be 125% of the rated current. Maximum temperature of the bus and the connections shall not exceed 85 degrees centigrade. The busbars shall be of liberal design for the required current rating i.e. 0.8Amp/sq.mm.

The main phase busbars shall have continuous current rating throughout the length of each power control centre and the neutral busbars shall have continuous rating of at least 50% of phase busbars.

3.6.6 Connections from the main busbars to functional circuits shall be arranged and supported so as to withstand without any damage or deformation, the thermal and dynamic stresses due to short circuit currents.

All busbars and tapings shall be provided with color coded sleeves for phase identification.

All joints/tapping points of the buses shall be suitably shrouded to prevent accidental contact.

4.0 **Circuit Breakers :**

4.1 General :

4.1.1 Circuit breakers shall be of triple pole / four pole, air break, horizontal draw out /Fixed type, as given in the schedule of work and comply with the requirements of relevant IS with latest amendments and shall have the following :

i) A short circuit breaking capacity of not less than 50 KA RMS at 415 volts, 50 Hz AC.

ii) A short circuit making capacity of 105 KA.

iii) A short time withstand capacity of 150 KA for one second.

iv) Electrical overload performance at 6 times the rated current, 100% of the rated voltage as recovery voltage at 0.5 power factor.

v) Dielectric test of 2.5 KV applied for one minute on main circuits.

4.1.2 The circuit breakers shall be fitted with detachable arc chutes on each pole designed to permit rapid dispersion, cooling and extinction of the arc. Interphase barriers shall be provided to prevent flash over between phases.

4.1.3 Arcing contacts shall be of hard wearing material copper tungsten or silver tungsten and shall be easily replaceable. Main contacts shall be of silver plated copper of high pressure type and generous cross section.

4.2 Operating Mechanism :

The operating mechanism shall be of robust design, with minimum number of linkages to ensure maximum reliability. Manually operated circuit breakers shall be provided with spring operated closing mechanism which are independent of speed of manual operation. Electrically shall be independent of the motor which shall be used slowly for charging the closing spring.

The operating mechanism shall be such that the breaker is at all times free to open immediately when the trip coil is energized.

Mechanical operation indicators shall be provided to show open and close positions of the breaker. Electrically operated breakers shall be additionally provided with mechanical indications to show charged and discharged conditions of the charging spring.

Means shall be provided for slow closing and opening of the breaker for maintenance purposes, and for manual changing and closing of electrically operated breakers during emergencies,

4.3 Protection :

Provisions shall be available for fitting a minimum of five trip devices - three over current, as shunt trip and an under voltage release or two over current and earth fault release, a shunt trip and one under voltage release. The breakers shall be of the shunt or series trip type as specified in the schedule.

4.4 Housing of Circuit Breaker :

Circuit breakers shall be individually housed in sheet metal castle provided with hinged doors. The breaker along with its operating mechanism shall be mounted on a robust carriage moving on guide rollers within the castle. Isolating contacts for both power and control circuits shall be of robust design and fully self aligning. The assembly shall be designed to allow smooth and easy movement of the breakers within its castle.

The breaker shall have three distinct positions within the castle as follows :

- i) 'Service' position : With main and auxiliary contacts connected.
- ii) 'Test' position : with power contacts fully disconnected and control circuit contacts connected.
- iii) 'Isolated' position : with both power and control circuit contacts fully disconnected.

It shall be possible to achieve any of the above positions with the castle doors closed. Mechanical position indicators shall be provided for the three positions of the breakers.

4.5 Interlocking :

4.5.1. The moving portion of the circuit breaker shall be interlocked so that :

- i) It shall not be possible either to isolate it from the connected position, or to plug it in from the Isolated position with the breaker closed.
- ii) The circuit breaker can be closed only when it is in one of the three positions or when it is fully out of the castle.
- iii) It shall not be possible to open the hinged door of the castle unless the breaker is drawn to the isolated position.
- iv) Inadvertent withdrawal of the circuit breaker too far beyond the supporters is prevented by the suitable stops.

4.5.2 Provisions shall be available for the padlocking of the circuit breaker access frame in any of the three positions.

4.5.3 Automatically operated safety shutters shall be provided to screen the fixed isolating contacts when the breaker is drawn out from the castle.

4.5.4 The moving portion of the circuit breaker shall be provided with a heavy duty, self aligning earth contact, which shall make before and break after the main isolating contacts during insertion into with drawl from the service position of the breaker. Even in the isolated position positive earthing contact should exist.

4.5.5 Auxiliary switches directly operated by the breaker operating mechanism and having 4 'NO' and 4 'NC' contacts, shall be provided on each breaker. The auxiliary switch contacts shall have a minimum rated thermal current of 10 amps.

5.0 Switch Fuse Units :

5.1 General :

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The switch fuse units shall be of the load break, heavy duty, cubicle type conforming to the requirements IS and of AC 23 duty.

The switch fuse units shall be capable of withstanding the thermal and electromagnetic stresses caused by short circuits for the time of operation of the associated fuse links.

The switch fuse units shall be double break and have quick make break mechanism, designed to ensure positive operation.

All switch fuse contacts shall be silver plated at the current transfer surfaces.

The unit shall be provided with a front operating handle. The ON and OFF positions of the switch handle shall be clearly marked.

5.2 Interlocks and Safety :

Interlocks shall be provided so as to prevent opening of the unit door when the switch is in the ON position and also to prevent closing of the switch with the door not properly secured. It should however be possible for a competent person to operate the switch shall be suitable for locking with switch in the OFF position by means of a padlock.

The interior arrangement of the switch fuse unit shall be such that all 'Live' parts are shrouded.

5.3 HRC Fuses :

The switch fuse units shall be fitted with High rupturing capacity cartridge fuse links with ISI marking for a rupturing capacity of not less than 80 KA at 415 volts. The fuse links shall be mounted in a drawout carriage, thus ensuring positive isolation of contacts during fuse replacements.

6.0 Current Transformers.

Current transformers shall comply with the requirements of relevant latest amendment IS. They shall have ratios, outputs and accuracy as specified in the schedule.

7.0 Indicating / Integrating Meters :

All indicating instruments shall be of flush mounted industrial pattern conforming to the relevant latest amended IS. The instrument shall have non reflecting bezels, clearly, divided and indelibly marked scales, and shall be provided with zero adjusting devices in the front. Integrating instruments shall be of flush mounted switch board pattern complying with the requirements of relevant latest IS.

8.0 Relays :Circuit breakers shall be provided with integrally mounted relays as specified in the schedule.

The relay shall have a set of three phase characteristics, which shall be adjustable over a wide range, to provide discrimination between a multiplicity of devices. The relay shall be able to provide over current and earth fault protection. Also UV and Shunt trip Relays are to be provided.

9.0 Control switches/Selector switches :Control switches/Selector switches shall be of the heavy duty rotary type, with plates clearly marked to show the operating position. They shall be of semi-flush mounted type with only the front plate and the operating handle projected.

Circuit breakers control switches shall be of the spring return to neutral type.

10.0 Indicating lamps and push buttons :

Indicating lamps shall be of the LED type of low watt consumption, provided with series resistors where necessary and with translucent lamp covers. Bulbs and lenses shall be easily replaceable from the front.

Push buttons shall be of the momentary contact, push to actuate type fitted with self-reset contacts and provided with plates marked with its junctions.

11.0 Cable terminations :

Cable entries and terminals shall be provided in the switch board to suit the number, type and size of aluminum conductor power cables and copper conductor control cables as indicated in the schematic diagram.

Provision shall be made for top or bottom entry of cables as required. Generous size of cabling chambers shall be provided, with the position of cable glands and terminals such that cables can be easily and safely terminated.

Barriers or shrouds shall be provided to permit safe working at the terminals of one circuit without accidentally touching that of another live circuit.

Cable riser shall be adequately supported to withstand the effects of rated short circuit currents without damage and without causing secondary faults.

Cable sockets shall be of copper and of the crimping type/soldering as required.

12.0 Control wiring :All control wiring shall be carried out with 1100/650 V grade single core Copper cable conforming to relevant IS having stranded copper conductors of minimum 2.5 sq.mm. section for CT Wiring and 1.5sq.mm for Control/indicating Instruments.

Wiring shall be neatly bunched, adequately supported and properly routed to allow easy access and maintenance.

Wires shall be identified by numbered ferrules at each end. The ferrules shall be of the ring type of non-deteriorating material. They shall be firmly located on each wire so as to prevent free movement.

All control circuit fuses shall be mounted in front of the panel and shall be easily accessible.

13.0 Terminal blocks and lables :

Terminal block shall be of 500 volts grade of the stud type. Insulating barriers shall be provided between adjacent terminals.

Terminal block shall have minimum current rating of 10 amps and shall be shrouded.

Provisions shall be made for lable inscriptions.

Lables shall be made of anodized aluminum, with white engraving on black background. They shall be properly secured with fasteners. Danger plate of size and descriptions as recommended in the relevant IS shall be provided on the PCC.

14.0 Tests :

i) The power control centre shall be completely assembled, wired, adjusted and tested for operation under simulated conditions to ensure correctness of wiring and interlocking and proper functioning of all components.

ii) Each power control centre and components shall be subjected to standard routine tests as per applicable clauses of relevant standards.

iii) All current carrying parts and wiring of power control centre shall be subjected to power frequency voltage withstand test.

15.0 Drawings :After the award of the contract the contractors shall submit three copies of the following drawings for approval of the Department.

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i) Outline dimensional drawing of the PCC showing the general arrangement indicating the following :

- a) Busbar clearances;
- b) power and control cable entry points;
- c) Configuration of busbars;
- d) Details of support insulations and spacings;
- e) Outgoing power cable termination arrangements.

ii) Single line diagram of power control centre showing Protection, Metering etc.

iii) Cubicle wiring diagram.

iv) List of Firements with Ratings & makes / Models

16.0 Installation Testing and commissioning :

The power control centre shall be installed over the cable trench/cable pit using suitable size of MS channel including grouting of the channel with necessary bolts and nuts. Proper earthing of PCC shall be done using two independent copper/GI strip of sizes as indicated in the schedule. The channel shall be painted with one coat of red oxide primer and two coats of anticorrosive enamel paint of proper shade as directed by the Engineer-in-charge.

The pre-commissioning tests as required shall be done and the PCC shall be commissioned.

CHAPTER 3 LAYING OF CABLES

1.0 Scope :

This specification is intended to cover the requirements of installation and energizing of PVC/XLPE/PILCDSTA power cables including jointing of cables.

2.0 Standards :

The power cable and its fixing accessories shall comply with the latest relevant Indian Standards and National Electrical Code.

3.0 Laying of Cables :

3.1 General :

3.1.1 Before the commencement of cable laying, it shall be ensured by the Engineer-in-Charge that only ISI marked cables are used. It shall be the responsibility of the contractor to check the soundness and correctness of the size of the cable while taking delivery of the cable from stores. Any defect noticed shall be brought to the notice of the issuing authorities immediately. If any defects is noticed after the cable is laid or during the process of laying, it shall be brought to the notice of the Engineer-in-Charge and upon his satisfaction, that the cable is not damaged due to bad handling, it will be the entire responsibility of the contractor to retrieve the cable already laid and return the defective cable to store and take fresh length of the cable from the store and relay the same.

3.1.2 The material such as bricks, sand, cable route markers, RCC slab of best quality as approved by the Engineer-in-Charge only shall be used for cable laying works.

3.1.3 The contractor shall provide all the necessary labour, tools, plants and other requisites at his own cost for carrying out pumping of water and removing of water from trenches, if any, where required.

3.1.4 Installation shall be carried out in a neat, workman like manner by skilled, experienced and competent workman in accordance with standard practices.

3.1.5 While laying the cable care shall be taken to avoid formation of kinks and also damage to the cable. In the case of cable bends, it shall not have bent radius lesser than 20 times the overall diameter of the cable.

3.1.6 A cable loop of about five meters length and as directed by the Engineer-in-Charge / SBI shall be provided at the following locations.

- a) Near the termination points
- b) Near to the straight through joint

3.1.7 The method of cable laying and routing of cables, shall in every case be as directed by the Engineer-in-Charge / consultant / SBI.

3.1.8 Whenever cable passes through hume pipes/GI pipes embedded across the wall in a building, both the ends of the pipe shall be suitably sealed.

3.1.9 Identification tags indicating the size of the cable and feeder designation shall be securely attached at both ends of the cable. Such tags shall also be attached to the cable at intervals of 50 Mtrs. The materials of the tag shall be of either 12 SWG GI sheet. In case of plastic, the details have to be engraved and incase of GI sheet, the details should be punched. Cable route markers shall be provided at the intervals of 200 M with a minimum of one number route marker. The details of the route makers shall be as per the drawing. At the locations of straight through joints, necessary joint-markers shall be provided.

3.1.10 When cable runs vertically, it shall be clamped on mild steel flats or angle iron fixed on walls and are spaced at such intervals as to prevent buckling of the cables. All steel work shall be painted with a coat of red oxide and thereafter finished with suitable anticorrosive paints.

3.2 Cable laid in ground :

3.2.1. All MV cables (up to 1.1 KV) shall be laid at a minimum depth of 0.75 M & HT cables (1.1 KV to 11 KV) shall be laid at a depth of 1.0 M when laid in ground. When cable pass through roads, nallahs etc. they must be protected by either hume pipe or GI pipe of suitable dimensions.

3.2.2. Excavations of trenches shall be carried out as indicated in the drawing. The width of the trench at the bottom shall be 0.4 M for one cable. In case the total number of cables laid in trenches is more than one, then the width shall be such that the spacing between the cables is maintained as shown in the drawing. Before the cable is laid in the trench the bottom of the trench shall be cleared from stones and other sharp materials and filled with sand layers of 75 mm, as shown in the drawing.

3.2.3. While removing the cable from the drum, it shall be ensured that the cable drum is supported on suitable jacks and the drum is rotated to unwind the cable from the drum. The cable should never be pulled while unwinding from the drum. It shall be ensured that the cables are run over the wooden rollers placed in the trench at intervals not exceeding 2 M.

3.2.4. After placing the cables in the trench shall be filled in layers ensuring that each layer is well rammed by spraying water and consolidated. The extra earth shall be removed from the place of trench and deposited at a place as directed by the Engineer-in-Charge/consultant / SBI.

3.2.5. The HT cables shall be provided with RCC slabs (marked HT cable) on top as protection.

3.3 Cables laid in built up trench :

3.3.1. Before the commencement of cable laying the cable trench shall be drained properly. Cable shall be laid as explained in item 3.2. Cable shall be properly clamped to the cable supports, which are provided in the cable trench. The method of clamping shall suit the size of the cable and the cable supports, which are provided in the cable trench. The method of clamping shall suit the size of the cable and the cable supports, as directed by the Engineer-in-Charge / SBI.

Care shall be taken while removing and replacing the trench cover slab. It is the responsibility of the contractor to make good any damaged trench covers.

3.4. Cable terminations and straight through joints :

3.4.1. All cable jointing materials such as straight through joint boxes, cable compound, cable lugs, insulation tapes etc. shall be of best quality and as approved by the Engineer-in-Charge / SBI.

3.4.2. Cable glands for strip / armoured cables shall include a suitable armour clamp for receiving and securely attaching the armouring of the cable in a manner such that no movement of the armour occurs when the assembly is subjected to tension forces.

The cable gland shall not impose on the armouring, a bending radius not less than the diameter of the cable. The clamping ring shall be solid and of adequate strength.

Provision shall be made for attachment of an external earthing bond between the metallic covering of the cable and the metallic structure of the apparatus to which the cable box is attached.

3.5 Sealing boxes :

3.5.1 A sealing box, irrespective of the class of insulation of the cable for which it is intended, shall be so designed that it may be filled with compound after connecting the cable specially in flame proof/hazardous areas.

3.5.2 All parts and connection for attaching the armouring, wiping or clamping the metallic sheath in a sealing box, shall be easily accessible. This may be achieved by splitting the box or by providing a suitable cover or other such means.

3.5.3 The joints in the box shall prevent leakage of the compound.

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3.5.4 Provision shall be made to ensure that the cores of the cable are efficiently sealed to prevent moisture penetrating along the strands or the cable conductors.

3.5.5 The sealing box shall be provided with compound filling orifices with suitable covers or plugs of size that will permit easy pouring of the compound.

In all cases where screwed plugs are used, one or more air vents shall be provided to ensure complete expulsion of air and total filling of the box with compound.3.5.6 The box shall be of sufficient length to allow for manipulation of the insulated cover without damage to them or to the insulation.

3.5.7 A sealing box intended to be attached directly to the apparatus shall be designed such that the box together with the connected cable may be detached from the apparatus without disturbing the sealing compound.

3.5.8 Cable sealing and dividing boxes intended for use in the flame proof areas shall comply additionally with the relevant requirements of IS:2148-1968.

4.0 Testing

Once cable is laid, following tests shall be conducted in the presence of Engineer-in-Charge, before energizing the cable:

- i) Insulation resistance test (Sectional and Overall).
- ii) Sheathing continuity test.
- iii) Continuity and conductor resistance test.
- iv) Earth test.
- v) High voltage test.

Tests conducted shall be as per Indian Standards and National Electrical Code.

CHAPTER 4 EARTHING

1.0 SCOPE:

This specification is intended to cover the requirements of supply, installation, testing and commissioning of

- a) Pipe earthing
- b) Plate earthing
- c) Strip earthing

2.0 STANDARDS:

Earthing installations shall conform to the Indian Electricity Rules - 1956, as amended from time to time and IS 3043-1989 "code of practice for earthing", with latest amendments.

3.0 Earth electrode arrangement :

3.1 Pipe electrode :

3.1.1 Electrode shall be made of CI pipe having a clean surface and not covered with paint, enamel or poorly conducting material. Galvanized pipe shall not be smaller than 100 mm ID. Earthing with pipe electrode shall be done as per the details indicated in IS : 3043/87 .

3.1.2 Electrodes shall be embedded below permanent moisture level.

3.1.3 The length of pipe electrodes shall not be less than 2.5 m. if rock is encountered, pipes shall be driven to a depth of not less than 2.5 m with suitable inclination. Pipe shall be in one piece and deeply driven.

3.1.4 To reduce the depth of burial of an electrode without increasing the resistance, a number of rods or pipes may have to be connected together in parallel. The distance between two electrodes in such a case shall not be less than twice the length of the electrode. The earthing lead shall be connected by means of a through bolt, nuts and washers and cable socket.

3.2 Plate electrode :

For plate electrodes, minimum dimensions of the electrode shall be as under.

3.2.1 GI plate electrode : 600 x 600 x 6 mm thick.

3.2.2 Copper plate electrode : 600 x 600 x 3.15 mm thick

3.2.3 The electrode shall be buried in ground, with its faces vertical and top not less than 2.5 M from the surface of the ground.

3.2.4 Earthing using plate electrode shall be done as per details, indicated in drawing.

3.2.5 Plate electrodes shall have a galvanized iron water pipe, buried vertically and adjacent to the electrode. One end of pipe shall be atleast 5 cm above the surface of the ground and need not be more than 10 cm. The internal diameter of the pipe shall be atleast 19 mm. The length of pipe under the earth's surface shall be such that it shall be able to reach the center of the plate. The earthing lead shall be securely bolted the plate with two bolts, nuts, check nuts and washers.

3.3. Strip or conductor electrodes :

3.3.1. Strip electrode shall not be smaller than 25 x 1.6 mm, if of copper and 25 x 3 mm, if of galvanized iron and steel. If round conductors are used as earth electrodes, their cross sectional area shall not be smaller than 3 sq.mm , if of copper and 6 sq.mm. if galvanized iron and steel.

3.3.2. Conductor shall be buried in trenches not less than 0.5 m deep.

4.0 General :

i) All materials used for connecting the earth lead with electrode shall be of GI in case of GI pipe and GI plate electrodes, and of tinned brass in case of copper plate electrode. The earthing lead shall be securely connected at the other end to the main board.

ii) The earthing lead from electrode onwards shall be suitably protected against mechanical injury by routing the earth wire / strip through a suitable size of GI pipe.

iii) All medium voltage equipments shall be earthed by two separate and distinct connections with the earth. In the case of high and extra high voltages, the neutral points shall be earthed by not less than two separate and distinct connections with the earth, each having its own electrode at the generating station or substation.

iv) All materials, fittings etc. used in earthing shall conform to Indian standard specifications wherever they exist. In the case of materials for which Indian standard specifications do not exist, such materials shall be approved by the Engineer-in-Charge.

v) The earth electrode shall be kept free from paint, enamel and grease.

vi) It shall be ensured that similar materials for respective earth electrodes and earth conductors are used.

vii) Earth electrode shall not be installed in proximity to a metal fence.

viii) Copper/GI strip shall be connected to the respective earth electrodes, either by brazing or welding respectively. The Copper/GI strip shall be jointed only either by brazing or by riveting at the end of over lapping portions. The over lap shall not be less than 50 mm.

ix) Earthing clamps used for supporting earth strips shall be made of such materials so as to avoid bimetallic action between strip and clamps.

5.0 Testing :

The earth resistance of each electrode shall be measured by using a reliable and calibrated earth megger and the value shall be as per IS/IE rules .

LIST OF I.S.CODES FOR INTERNAL ELECTRIFICATION INSTALLATIONS

B.

- | | | |
|-----|------------------------------------------------------------------------------------------|------------------|
| 1. | EXTERNAL ELECTRIFICATION wiring installation
(system voltage not exceeding 650V) | IS 732 – 1989 |
| 2. | Graphical symbols used in Electro-technology
art-XI-Electrical Installation buildings | IS 2032-1969 |
| 3. | Fire safety of buildings (General) Electrical Installation | IS 1646-1961 |
| 4. | 3 pin plugs and sockets | IS 1293 |
| 5. | Earthing. | IS 3043-1966 |
| 6. | Rigid steel conduits for electrical wiring | IS 9537-PII-1989 |
| 7. | Fittings for electrical wiring | IS 2667-1964 |
| 8. | Flexible steel conduits electrical wiring | IS 3430-1966 |
| 9. | Accessories for rigid steel conduit insulated cables | IS 3837-1966 |
| 10. | General and safety requirements for electric lighting fittings | IS 1913-1969 |
| 11. | Protecting of buildings and allied structures against
lightning | IS 2309-1967 |
| 12. | Busbar ratings | IS 8084-1976 |
| 13. | On load change over switches | IS 4064-1978 |

TECHNICAL SPECIFICATIONS FOR AC WORKS

CHAPTER-1

ELECTRICAL WORK

1.0 SCOPE

The scope of work covers the requirements for the electrical works associated with air conditioning applications, namely, switch boards (MCCs), power cabling, control wiring, earthing, and remote control-cum-indicating panels. Electric motors are not covered here, as these are covered as part of the respective equipment specifications.

1.1 GENERAL

- i) Unless otherwise specified in the tender specifications, all equipments and materials for electrical works shall be suitable for continuous operations on 415 V / 240 V \pm 10% (3 phase / single phase), 50 Hz. AC system. Where the use of high voltage equipments is specified in particular works, all the respective equipments shall be suitable for continuous operation on such specified high voltage.
- ii) All electrical works shall be carried out complying with the Indian Electricity Rules, 1956 as amended to date.
- iii) All parts of electrical works shall be carried out as per appropriate CPWD General Specifications for Electrical work, namely, Part I (Internal) 2005 and National Building Code 2005 all as amended to date.
- iv) All materials and components used shall conform to the relevant IS specifications amended to date.

1.2 SWITCH BOARDS / MOTOR CONTROL CENTRE

- i) The main switch board in the Each AHU room shall be floor mounted, free standing cubical type and shall be factory built fabricated by one of the reputed switch board manufacturer. It shall be suitable for termination of the incoming cable(s)/ bus trunking from top/ bottom as per site conditions. The switchboards in air handling unit (AHU) rooms shall be wall mounted, or floor mounted as feasible at site and as approved by the Engineer- in – Charge, but they shall be cubical designed, unless otherwise specified and from open able from front.
- ii) The capacity of switch gear, starters etc. shall be suitable for the requirements of loads fed/controlled. Starting currents shall be duly considered in case of motor loads.
- iii) MPCB shall be used up to and including 63 A for motor applications and MCCB shall be used for other loads. ACB shall be used for 630 A and above ratings.
- iv) All MCCBs / MPCBs shall be of AC 23 duty as per IS: 4064-1978 as amended up to date.
- v) Switch boards controlling motors shall house starters for motors, unless otherwise specified. The starter shall be located adjacent to the controlling switch gear.
- vi) One-volt meter with selector switch, a set of indicating lamps and fuses for voltmeter and lamps shall be provided at each switchboard. One ammeter with CTS, and selector switch shall be provided with each motor starter. Instruments shall be flush mounted with the panel and have a glass index not higher than 1.5. The instruments and accessories shall be provided whether or not specifically indicated in the tender specifications.
- vii) The fabrication of switchboard shall be taken up only after the drawings for the fabrication of the same are approved by the Engineer-in-Charge.
- viii) Switchboards shall be fabricated as per specifications indicated in sub-para above.
- ix) The layout of bus bars and cable alleys shall be designed for convenient connections and inter-connections with the various switchgear. Connections from individual compartments to cable alleys shall be such as not to shut down healthy circuits in the event of maintenance work becoming necessary on a defective circuit.
- x) Care shall be taken to provide adequate clearances between phase bus bars as well as between phase bus bars, neutral and earth.

- i) Where terminations are done on the bus bars by drilling holes therein, extra cross section shall be provided for the bus bars. Alternatively, terminators. Cables connected to the upper tiers shall be duly clamped within the switchboard.
- ii) Provision shall be made for proper termination of cables at the switchboards such that there is no strain either on the cables, or on the terminators. Cables connected to the upper tiers shall be duly clamped with the help of PVC cable ties within the switchboard.
- iii) Identification labels shall be provided against each switchgear and starter compartment, using plastic engraved labels.
- iv) Metallic danger conforming to relevant IS shall be fixed on each electrical switchboard / MCC.

1.3

POWER CABLING

- i) Unless otherwise specified, the power cables shall be XLPE insulated, PVC outer sheathed aluminium / copper conductor, armoured cables rated for 1100 V grade as per IS: 1554 (Part 1) - 1988. The power cables shall be of 2 core for single phase, 4 core for sizes up to and including 25 sq.mm, 3-1/2 core for sizes higher than 25 sq.mm for 3 phase. Where high voltage equipments are to be fed, the cables shall be rated for continuous operation at the voltages to suit the same.
- ii) Power cables shall be of sizes as indicated in the tender specifications. In all other cases, the sizes shall be as approved by the Engineer-in-Charge, after taking into consideration the load, the length of cabling and the type of load.
- iii) Cables shall be laid in suitable metallic trays suspended from ceiling, or mounted on walls, or laid directly in ground or clamped on structures, as may be required. Cable ducts shall not be provided in plant rooms. Cable trays shall be sheet steel with adequate structural strength and rigidity type, designed with adequate dimensions for proper heat dissipation and also access to the cables with necessary supports and suspenders shall be provided by the Air-conditioning contractor as required.
- v) Cable laying work shall be carried out in accordance with 15.3(iii) above. The scope of work for the Air-conditioning contractor shall include making trenches in ground and refilling as required, but excludes any masonry trenches for the cable work.

1.4 CONTROL WIRING

- i) Control wiring in the plant rooms and AHU rooms shall be done using ISI marked PVC insulated and PVC sheathed, 1.5 sq.mm copper conductor, 250V grade, cables drawn in ISI marked steel or PVC conduits. Alternatively, armoured multi-core copper conductor cables may also be used for the purpose. The control cables interconnecting the plant room and the AHU rooms shall be of multi-core armoured type only, and suitable for laying direct in ground.
- ii) The number and size of the control cables shall be such as to suit the control system design adopted by the Air-conditioning contractor.
- iii) ISI marked steel conduits pipes, wherever used, shall be of gauge not less than 1.6 mm thick for conduits upto 32 mm dia and not less than 2.0mm thick of higher sizes. All conduit accessories shall be threaded type with substantial wall thickness.
- i) Control cables shall be of adequate cross section to restrict the voltage drop.
- ii) In the case of control wires drawn through steel conduits, the wire drawing capacity of conduits as specified under the CPWD general specifications for Electrical Works (Part I) 2005 shall not be exceeded.
- iii) Runs of control wires within the switchboard shall be neatly bunched and suitably supported/clamped. Means shall be provided for easy identification of the control wires.
- iv) Control wiring shall correspond to the circuitry/sequence of operations and interlocks approved by Engineer-in-Charge.

1.5 EARTHING

- i) Provision of earth electrodes and the type of earthing shall be as specified in the tender specifications.
- ii) The earth work shall be carried out in conformity with CPWD Specifications for Electrical works (Part-I), Internal 2005 / NBC 2005.
- iii) Metallic body of all medium voltage equipments and switch boards shall be connected by separate and distinct earth conductors to the earth stations of the installations; looping of such body earth conductors is acceptable from one equipment, or switch board to another.
- iv) G.I. plate earthing shall be provided for PTAC plants and reciprocating central AC plants upto 100 TR capacity. Above 100 TR reciprocating units, copper plate earthing shall be provided.
- v) The size of earth conductors for body earthing of equipments shall be as under:-

Motor upto and including 10 HP rating	2Nos.3mm dia copper wire / 2 nos. 4mm dia GI wire
12.5 HP to 40 HP	2Nos.4mm dia copper wire / 2 nos. 6mm dia GI wire
50HP to 75 HP	2Nos.6mm dia copper wire / 2 nos. 25x3mm GI strip
Above 75 HP	2Nos.25mm x 3mm copper strip / 2 nos. 25x6mm GI strip
Switch boards with incoming rating upto	
100 A	2Nos.3mm dia copper wire / 2 nos. 4mm dia GI wire
125 A to 200 A rating	2Nos.6mm dia copper wire / 2 nos. 25x3mm GI strip
Above 200 A rating	2Nos.25mm x 3mm copper strip / 2 nos. 25x6mm GI strip
- vi) Armouring of cables shall be connected to the body of the equipments/switch board at both the ends. Compression type glands shall be used for all such terminations in the case of PVC cables.

1.6 MOTOR STARTER

- i) The motor starter shall conform to IS: 1822 "Motor starters of voltage not exceeding 1000 volts" and shall be air insulated and suitable for 415 volts, $\pm 10\%$, 50 Hz, 3 phase AC supply. Enclosures shall have protection of IP 52 for Indoor applications and IP 55 for outdoor applications.
- ii) Starter for the motor shall be direct on line (D.O.L) for motors up to and including 7.5 H.P. rating and automatic star-delta close transition type for motors of higher ratings unless otherwise specified in the tender specifications. Starters shall be rated for intermittent duty. Starting current should not exceed two times the full load current.
- i) The starter shall be mounted on the main electrical control panel/ unit mounted / self mounted as specified.
- ii) Each starter shall be provided with the following protections:-
 - a. Thermal overload on all the three phases with adjustable settings,
 - b. Under voltage protection, and
 - c. Independent single phasing preventor. (current sensing type)
- iii) Adequate number of extra NO / NC contacts for interlocks, indicating lamps etc. shall be provided on the starter / contractor.

1.7 PAINTING

All panels shall be supplied with the manufacturer's standard powder coating .

CHAPTER- 2.0
INSPECTION, TESTING AND COMMISSIONING

2.0 SCOPE

This chapter covers the initial inspection and testing of condenser, AHUs at manufacture's works, initial inspection of other equipments/ materials on receipt at site, final inspection testing & commissioning of all equipment at site & description of testing requirements & procedure.

2.1 INITIAL INSPECTION AT MANUFACTURE'S WORKS

Compressor

- i) Salient features such as model, No. of cylinders, capacity control, provision of crank case heaters, type of lubrication etc. shall be verified against the requirements visually without opening the compressors.
- ii) Manufacturer's internal test certificates shall be scrutinized to check compliance with the requirements as specified in the order.
- iii) Rate of leak test shall be checked by developing 7 Kg/sq.cm (gauge) pressure on HP side and 1 Kg/sq.cm on LP side using dry Nitrogen air or carbon dioxide. The leakage through the valves, shaft seal, cylinder heat gasket etc should not be more than 0.3 Kg/sq.cm per cylinder in 4 minutes time. Alternatively this may be demonstrated through vacuum.
- iv) Pneumatic pressure test shall be carried out at 22 Kg/ sq.cm and by submerging the compressor in water for 1 hour & there shall be no leakage.
- v) Free running test shall be carried out at the rated speed specified in contract. This test shall be carried out for 30 minutes in open space. During this running test following operations are to be noted:
 - i) Manual loading / unloading of capacity control
 - ii) Lubrication oil pressure
 - iii) Safety valve operation
- v) Vacuum test for the compressor for 0.5mmHg..

2.2 Condensers

- i) Salient features like number of tubes, inside diameter of tubes (from which the gauge of the tube can be verified), no. of passes, material of fins, length of condenser, provision of fittings like safety valve, water, gas connection shall be verified during stage inspection. The tube thickness shall be checked.
- ii) Manufacturer's internal test certificates shall be furnished and it shall be verified against contract requirements.
- iv) Pneumatic pressure test at twice the normal condensing pressure for gas side of condenser shall be carried out.

2.3 Air Handling Units:

- i) Salient features such as model, size, physical dimensions, and other details of various sections, fan motor details, fan dia, static pressure etc. shall be verified against the contract requirements.
- ii) Manufacturer's internal test certificates for the motor and air handling unit shall be furnished and scrutinized as per contract requirements.
- iii) Test certificate for static and dynamic balancing of the fan/ blower should be furnished. Fan balancing may be witnessed by Engineer-in-Charge or his authorized representative.
- iv) Salient features like, type, material, no. and gauge of fins and tubes and no. of rows of cooling coil shall be furnished and verified with reference to contract requirements during stage inspection.
- v) Hydraulic pressure to the extent of 10 Kg/sq.cm or pneumatic pressure of 21 Kg/ sq.cm shall be applied to cooling coil and this pressure should be maintained for 1 hour and no drop should be observed indicating any leaks.

2.4 INITIAL INSPECTION AT SITE

Ducting

- i) The sheet used for ducting shall be checked for physical test at site. The physical test should include the sheet thickness and bend test as per relevant IS specifications.
- ii) Zinc coating of GSS sheet as mentioned in the tender documents may be got tested from a laboratory to verify that same meets the contract requirements.

Switch Gear, Control Gear, and Measuring Instruments

These should be of specified make. For air circuit breaker manufacturer's test certificate shall be furnished by contractor and the same shall be verified as per contract requirements.

Electric Motors

Electric motors should be of specified make, manufacturer's test certificate for electric motor shall be furnished.

Insulation and acoustic lining

- i) Physical verification for thickness and make should be made as per contract before application of insulation.
 - ii) Manufacturer's test certificate for density should be furnished.
- Note: Accuracy of testing instruments shall be as mentioned in the final inspection procedure.

2.5 FINAL INSPECTION

- i) After completion of the entire installation as per specification in all respects, the AC contractor shall demonstrate trouble free running of the AC equipments and installation for a period of minimum 120 hours of running as detailed under following points:
 - After the installation work has been completed by the contractor, he will conduct tests and make adjustments as may be necessary to satisfy himself that the plant including low side equipments is capable of continuous running. There after he will offer to the department a running-in period of 7 days subject to a minimum aggregate of 120 hrs at his cost. The duty cycle of the plant during this running in period shall be same as that specified in the tender documents. In case of multiple compressor installations, all the compressors should be run by rotation. The plant will be operated and a log of all parameters will be maintained during this period. The contractor will be free to carry out necessary adjustments etc during this period without stopping the plant. Record of inside conditions will be made during this period to check the same are as per NIT requirements. The plant will be said to have successfully completed the running-in-period, if no break down or abnormal/unsatisfactory operation of any machinery occurs during this period. After this the plant will be made available for beneficial use. After the plant has operated without any major break down/ trouble and inside conditions are maintained as per NIT requirements for the above specified running in period, it shall be taken over by the department subject to guarantee clause mentioned else where in the tender. This date of taking over of plant after trouble free operation during the running in period shall be the date of acceptance.

2.6 TESING REQUIREMENTS AND PROCEDURES

Balancing of all air systems and all tests as called for in the specification shall be carried out by the HVAC contractor in accordance with the specifications and relevant local codes if any. Performance tests of individual equipment and control shall be carried out as per manufacturer's recommendation.

All tests and balancing shall be carried out in the presence of Engineer-in-Charge or his Authorized representative.

The whole system balancing shall be tested with microprocessor based hi-tech instruments with an accuracy $\pm 0.5\%$.

The instrument shall be capable of storing data and then down loading into a P.C. The HVAC contractor shall provide a minimum but not limited to the following instruments:

- Microprocessor based calculation meter to measure DB and WB temperature, RH and Dew Point
- Velo meter to measure air volume and air velocity
- Pitot tube
- Electronic rotary vane Anemometer
- Accubalance flow measuring hood

The contractor shall be responsible to provide necessary sockets and connections for fixing of the testing instruments, probes etc.

2.6.1 Air Systems

Systems are to be balanced by first adjusting the total flow at the fan, then by adjusting main dampers and branch dampers. Only final minor adjustments are to be made with register and diffuser dampers. Balancing of the air system shall be accomplished without causing objectionable air noise. Baffles and orifice plates required for proper air balance shall be furnished and installed by the contractor. Basically the following tests and adjustments are required.

- i) Test all fan systems to provide proper cfm/ cmh.
 - ii) Adjust fresh air, return air and exhaust dampers to provide proper air quantities in all modes of control.
 - iii) Test and record fresh air, return air and mixed air temperature at all air handling units. Test and record data at all coil after air and hydronic systems are balanced. Measure wet and dry bulb temperature on cooling coils.
 - iv) Make point tube transverse at all main supply and return ducts to set proper air quantities. Adjust all zone and branch dampers to proper cfm /cmh.
 - v) Test and adjust each register, grills , diffusers or other terminals equipments to within 5% of design air quantity. Each opening shall be defined on the test report by size, manufacturer's model , room location, design cfm and actual cfm. Outlets shall be adjusted to minimize objectionable drafts.
- i) Test and record static pressure drop across all filters and major coils.
 - ii) High velocity duct systems shall be tested for leakages. If excessive or audible leakage is detected, the defect shall be repaid by the contractor. Sufficient static pressure readings shall be taken from the air handling units to the terminal units to establish system static pressure.

2.6.2 Balancing Tolerance

System shall be balanced with in the following tolerance:

1. Duct leakage rates (at operating pressures)

Low pressure ducts (0 to 0.5 Kpa)	5% of full flow
Medium pressure ducts (0.5 to 3 Kpa)	1% of full flow
High pressure ducts (greater than 3 Kpa)	1% of full flow
2. Air flow rates

Under 70 L/S	10% of flow
Over /at 70 L/S	5% of flow
3. Water flow rates

Chilled Water	2% of flow
Other	5% of flow
4. Heat flow rates

Heat exchangers	5% of design capacity
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Procedure:

Review all pertinent plants, specifications, shop drawings and other documentation to become fully familiar with the systems and their specified and intended performance.

Furnish equipment and instruct sheet metal trade on proper use for conducting duct leakage tests. Conduct first test as a way of instructing the above trades in the presence of the Department's representative.

Test performance and continuously record on a 24 hour basis, temperature and humidity levels where control equipment is provided for that purpose in certain critical areas. Before commissioning of the equipment, the entire electrical installation shall be tested in accordance with relevant BIS codes and test report shall be furnished by a qualified and authorized person.

2.6.3 Reports

Provide 3 copies of the complete balancing and testing reports to the department. Report shall be neatly typed and bound suitable for a permanent record. Report forms shall contain complete test data and equipment data as specified and safety measures provided as follows :

i) **Safety measures**

All equipments shall incorporate suitable safety provisions to ensure safety of the operating personnel at all times. The initial and final inspection reports shall bring out explicitly the safety provisions incorporated in each equipment.

2.6.4 Final documentation

The contractor shall leave the system operation in complete balance with water and air quantities as shown on drawings. Set stops on all balancing valves and lock all damper quadrants in proper position. Secure all automatic damper and valve linkages in proper positions to provide correct operating ranges. Proper damper positions shall be marked on ducts with permanent indication. Notify the department of any areas marginal or unacceptable system performance.

The above tests and procedures are mentioned herein, for general guidance and information only, but not by way of lamination to the provisions of conditions of contract and design/ performance criteria.

Upon commissioning and final handover of the installation, the HVAC contractor shall submit (within 4 weeks) to the Engineer-in-Charge/ department 6 (six) portfolios of the following indexed and bound together in hard cover ring binder (300 x 450 mm) in addition to the completion drawings as follows:

Completion Drawings

Three sets of following laminated drawings shall be submitted by the contractor while handing over the installation to the Department. Out of this one of the sets shall be laminated on a hard base for display in the AC plant room. In addition one set will be given on compact disc.

- a) Plant installation drawings giving complete details of all the equipments, including their foundations,
- c) Piping layout drawings including insulation giving sizes and lengths of all the pipes and the sizes and locations of all types of valves, and including isometric drawings for entire piping including pipe connections to the various equipments and insulation details wherever required.
- d) Duct layout drawings with their sizes and locations, and sizes and locations of all dampers, grills and diffusers.
- e) Line diagram and layout all electrical control panels giving switchgear ratings and their disposition, cable feeder sizes and their layout,
- f) Control wiring drawings with all control components and sequence of operations to explain the operation of control circuits.
- g) Comprehensive operation and maintenance manual
- h) Test certificates, consolidated control diagram and technical literature on all controls.
- i) Equipment warranties from manufacturers
- j) Commissioning and testing reports
- k) Rating charts for all equipment
- l) Log books as per equipment manufacturers standard format
- m) List of recommended spares and consumables

n) Any special tools required for the operation or the maintenance of the plant shall be supplied free with the plant.

At the close of the work and before issue of final certificate of completion by the Engineer –in-Charge, the contractor shall furnish a written guarantee indemnifying the department against defective materials and workmanship for the Defects liability period. The contractor shall hold himself fully responsible for re installation or replaced free of cost to the department.

- Any defective material or equipment supplied by the contractor.
- Any material or equipment supplied by the department which is proved to be damaged or destroyed as a result of defective workmanship by the contractor.

3.0 FILL THE TECHNICAL DETAILS FOR ALL OUTDOOR AND INDOOR UNITS

TECHNICAL DETAILS FOR OUTDOOR UNIT			
S.No	Parameter	Unit	Details
1	Make and Origin		
2	Model	Model	
3	Capacity	HP	
4	Operating Ambient Temperature Range	degC	
5	Power Supply		
6	Refrigerant		
7	Refrigerant Precharge Quantity		
8	Number of compressors		
9	Compressor Type		
10	Cooling Capacity	Kw	
11	Cooling Capacity	BTU/HR	
12	Power Input	Kw	
13	Tonnage	TR	
14	EER		
15	ISEER		
16	IKW / TR	Kw	
17	Dimension (In MM)	H x W x D	
18	Net weight	Kg	
19	Shipping Weight (apex)	Kg	
20	Refrigerant pipe connections		
21	Liquid		
22	Gas		
23	Air cooled condenser		
24	Type		
25	Fan Type		
26	Number of fans		
27	Air Quantity	CFM	
28	Motor Type		

TECHNICAL DETAILS FOR INDOOR UNIT

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S.No	Paramater	Unit	Details
1	Tonnage		
2	Make and Origin		
3	Model	Model	
4	Airflow Rate	CFM	
5	Number of speeds		
6	External static	Pa	
7	Capacity at nominal conditions (TR)		
8	Temperature control		
9	Refrigerant control		
10	Operating sound	dB	
11	Power Input	Kw	
12	Number of fan motor in evaporating and rating		
13	Casing material and finish		
14	Dimension in mm	H x W x D	
15	Net weight	Kg	
16	Filter material and rating		
17	Evaporator copper tube size & thickness (OD) and refrigeration		
18	Surface area on air side and refrigeration		

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

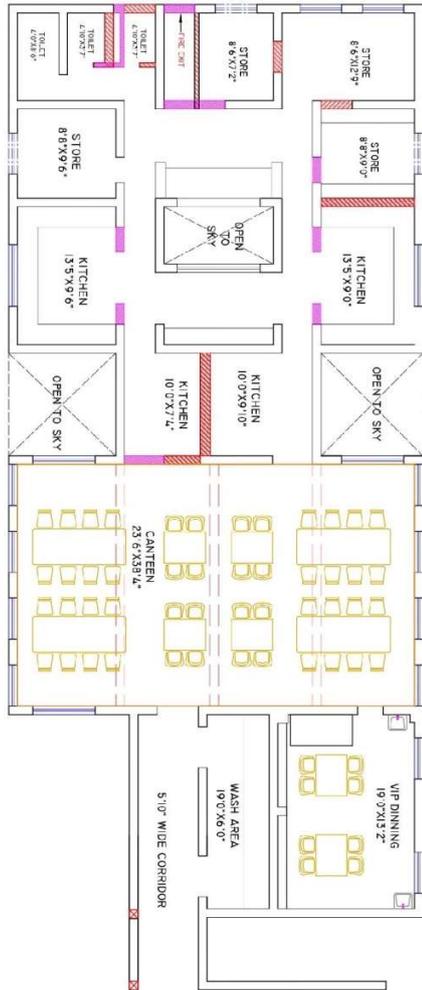
INTERIOR FURNISHING WORKS		
S. No.	MATERIAL NAME.	BRAND / MANUFACTURER.
1.	PLYWOOD – BWP – CONFIRMING TO IS : 710.	GREENPLY (club) / AUSTIN (platinum plus) /CENTURY PLY (Architect) / NICON PLY (CLUB) / MAYUR PLY(ROYAL PLY)SYLVAN.
2.	MDF – Exterior Grade (Medium Density Fibre Board) – CONFIRMING TO IS : 12406 - 2003. (Density: 750 – 850 Kgs/m3)	GREEN PLY / CENTURY / ARCHID / TESA/ SYLVAN.
3.	FLUSH DOOR – CONFIRMING TO IS : 2202 (Part – 1) – 1991.	NIKON / GREENPLY / CENTUARY / UNIPLY/ SYLVAN.
4.	LAMINATE – CONFIRMING TO IS : 2046-1995.	GREENLAM / MERINO/ FORMICA/ CENTURY / AICA/ SUNMICA ARCHID / VIR LAMINATE / BRAVIA.
5.	VENEER. (4MM AND PAPER VENEER) – GROUP MATCHED, STRAIGHT GRAIN.	GREENLAM / ARCHID / CENTURY/ MERINO
6.	GLASS.	SAINT GOBAIN /MODIFLOAT / ASAHI FLOAT.
7.	HARDWARE.	EFFICIENT GADGETS (EG) / EARL BEHARI (EBCO) / DOORSET/OZEN
8.	BEECH WOOD.	AS APPROVED BY SBI / ARCHITECT.
9.	SCREWS.	GKW NETTLEFOLD OR AS APPROVED.
10.	ADHESIVES.	MOVICOL / FEVICOL SH / ARALDITE/ JEEVANJOR
11.	PAINT.	ASIAN / NIPPON / BERGER / NEROLAC.
12.	FLOOR SPRING / DOOR CLOSER.	HETTICH/DOORSET / STERLING / DORMA / OZONE.
13.	LOCKS.	DOORSET / DORMA/ HETTICH/OZONE.
14.	GI SUPPORT SYSTEM FOR PLAIN FALSE CEILING.	GYPSTEEL ULTRA / US BORAL.
15.	GI DRY WALL PARTITION SYSTEM.	GYPSTEEL / US BORAL / FRAME WORK / RONDO / BMS.
16.	GYP SUM / PLASTER BOARDS.	GYPBOARD / LAGYP.
17.	GI SUPPORT SYSTEM FOR GRID CEILING.	ARMSTRONG / GYPSTEEL ULTRA / US BORAL.
18.	CEILING TILES.	ARMSTRONG / GYP ROCK / US BORAL./ DAIKEN
19.	ACRYLIC SOLID SURFACE.	LG Hausys, HI - MACS / DUPONT - MONTELLI / MERINO – HANEX / LOTTE - STARON.
20.	TEXTURED PAINT.	TERRACO / SPECTRUM.
21.	VINYL FLOORING.	LG / WINNER.
22.	WRITING BOARD.	WHITE MARK OR APPROVED.
23.	VITRIFIED, CERAMIC AND GLAZED TILES.	JOHNSON / KAJARIA / RAK/SOMAY/AGL.
24.	SANITARY FAUCETS AND FIXTURES.	JAGUAR / HINDWARE / KOHLER.
25.	ALUMINIUM COMPOSITE PANELS.	ALSTRONG / EUROBOND / ALUDECOR.
26.	CARPET TILES FLOORING.	GODREJ / ELEMENT / UNITEX / FLORTEX.
27.	CEMENT FIBER / CALCIUM SILICATE / REINFORCED MAGNESIUM SILICATE BOARD.	VISAKA / TRILITE / SHERA / BISON.
28.	ROLLER BLINDS	VISTA LEVOLOR, MAC, HUNTER DOUGLAS

ELECTRICAL WORKS		
S.No.	Material Name.	Brand / Manufacturer / Recommended Make.
1.	Switches/Sockets/Fan Regulators/Front.	MK India(Logic) / Toyoma / Legrand /ABB / LK / Crabtree / Siemens.
2.	Telephone/Computer Sockets	MK India(Logic) / Toyoma / Legrand /ABB / LK / Crabtree / Siemens / AMP / Dlink.
3.	Cables/Copper Conductor wires	Finolex / Polycab / Anchor / Havells / L & T / RR Kabels / lapp / Qflex.
4.	PVC conduits & Accessories	Precision (Dt) / Sudhakar/ Avon plast / Atul / Mercury / VIP.
5.	MS Conduits & Accessories	Gupta / Bharat / BEC.
6.	Metal clad Sockets	MDS / Clipsal / BCH / Legrand.
7.	MCBs / RCBO / RCCBS / MCB Distribution boards	MDS / L&T- Hager / Schneider / HPL / BCH / Siemens / ABB / Legrand /Havells.
8.	MCCBs/Switchgear	GE Power /Merlin Gerin(Compact) /BCH /L&T /MD.
9.	Under ground Cables	CCI / POLYCAB / FINOLEX / KEI / RR KABEL /Havells
10.	Cable Glands	HMI /Comet /Havells
11.	Capacitor Bank	Epcos /Neptune / Siemens.
12.	Cable Lugs	Dowell's / 3D /Havells
13.	MV Panels (PCCs)	Manufacturers with CPRI Test Certificate.
14.	ELRs/CBCT	Prokdvs /Nagoba
15.	Measuring Instruments	Prokdvs /Enercon
16.	Indication Lamps LED (protected type)	Schneider / Vaishno / Binay
17.	Resign cast CTs	AE / Kappa
18.	CAT6 / RG 6 / RG 11	Lapp / Delton / National / Mazda.
19.	LAN (RJ45) Sockets	Molex / Nordex / Avayya / Legrand.
20.	Light Fixtures	Philips / Wipro / Havells / GE / Crompton.
21.	Ceiling Fans & Exhaust Fans	Crompton Greaves.

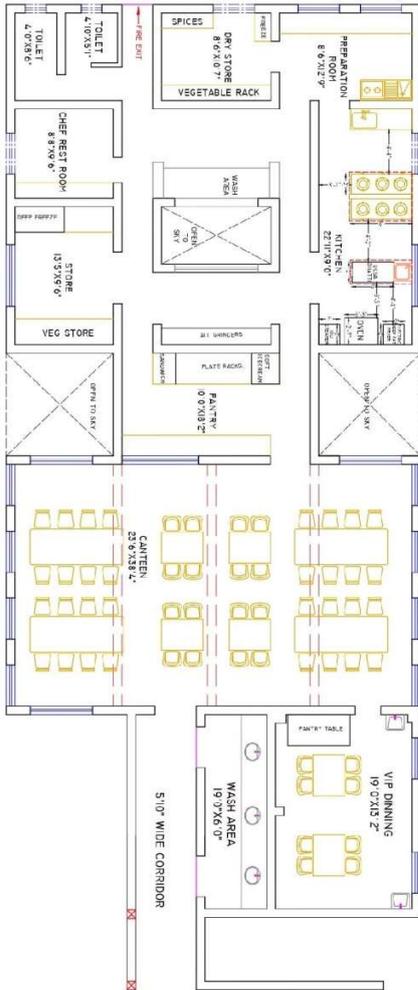
AIR CONDITIONING WORKS		
S.No.	Material Name.	Brand / Manufacturer / Recommended Make.
1.	VRV/F Out Door Unit	MITSUBISHI HEAVY, MITSUBISHI ELECTRIC, VOLTAS, DAIKIN, HITACHI, BLUESTAR.
2.	VRV/F- Indoor Units Cassette Type	MITSUBISHI HEAVY, MITSUBISHI ELECTRIC, VOLTAS, DAIKIN, HITACHI, BLUESTAR.
3.	VRV/F-Indoor Units Hi Wall Type	MITSUBISHI HEAVY, MITSUBISHI ELECTRIC, VOLTAS, DAIKIN, HITACHI, BLUESTAR.
4.	Inverter Split/Cassette AC	MITSUBISHI HEAVY, MITSUBISHI ELECTRIC, VOLTAS, DAIKIN, HITACHI, BLUESTAR.
5.	Refrigerant Joints	As per the Brand and OME SUBMITTED
6.	Refrigerant Piping	Mandev / Rajko
7.	Drain Piping	Mandev / Rajko/ Sudhakar pvc
8.	Nitrille Rubber Insulation	Aerolam / Armacell / Trocellene
9.	Control cum Transmission wiring	Delton/ Finolex/ Polycab
10.	Cable Tray	MEK/ Indian/ Patney
11.	Software Integration	MITSUBISHI HEAVY, MITSUBISHI ELECTRIC, VOLTAS, DAIKIN, HITACHI, BLUESTAR.

NOTE: The Contractor shall use only above mentioned material. All other materials shall confirm to the specifications laid down. The Contractor shall take this into account while tendering rates / prices. All materials and sections used should adhere to the manufacturer's guidelines and the contractor has to submit certificate from the manufacturer on usage of their specified product / sections.

DISMANTLING OF WALLS
IN KITCHEN AREA



RENOVATION PLAN OF KITCHEN AREA



CLIENT	STATE BANK OF INDIA SBILD VIZIANAGARAM	ORG. TITLE	CANTINEEN	SCALE	1 inch = 30'		
PROJECT	STATE BANK INSTITUTE OF LEARNING & DEVELOPMENT	AREA	CANTINEEN Area = 3117 SQ.FT.	DATE	13.09.2023		
SHEET NO.	01	CONSISTANT				DESIGNED BY: A.Suvalakshmi CHECKED BY: A.Suvalakshmi	