NIT NO	**Elec- 1**
DATE	**14/07/26**

STATE BANK OF INDIA

E-TENDER DOCUMENT FOR

PROPOSED ELECTRICAL WORKS FOR

Regional Business Office - IV, at Fourth Floor,

Sheranwala Gate, The Mall, Patiala, Distt. Patiala. (Pb).

(ELECTRICAL WORKS)

TENDER NOTICE

THROUGH E-TENDERING / ONLINE-TENDERING PROCESS

Electrical Contractors who are on the panel of

SBI, Chandigarh Circle, (LHO)

in the appropriate category are only eligible

(Contractors should submit proof of the same)

Note – Entire tender document / NIT / Technical bid should be uploaded on the service provider portal.

TECHNICAL BID

Last date for submission of e-tender : 04/08/26 by 1.30PM

Regional Manager,
State Bank of India,
Regional Business Office – IV, Patiala,
Sheranwala Gate, The Mall,
Patiala – 147001, (Pb).

NOTICE INVITING TENDER (NIT)

Name of work: Sbi Invites E–Tender For Proposed Electrical Works at **Regional Business Office - IV, at Fourth Floor, Sheranwala Gate, The Mall, Patiala, Distt. Patiala. (Pb).**

1	Name of the work	**E- Tender Notice** (Item Rate) **for proposed electrical works at REGIONAL BUSINESS OFFICE - IV, AT FOURTH FLOOR, SHERANWALA GATE, THE MALL, PATIALA, DISTT. PATIALA. (PB).**
2	Estimated cost	**Rs. 18,18,525/- + plus GST**
3	Cost of Tender Documents	**NIL**
4	Quantum of Earnest Money Deposit (EMD)	**Rs. 36,000/-**Drafts/BCs shall be in favor of "State Bank of India, Payable at **Patiala**
5	Date and Time where tender forms are available	**From 14/07/2026 till 04/08/2026 up to 1:30 pm** at https://www.tenderwizard.com/SBIETENDER (for submitting online)
6	Last date and time of submission of online Tender	**04/08/2026 Up to 01:30 PM**
7	Place, date & time for submission of e –tender Contact person / telephone no /email address.	a) On line submission of e-Tender (Including Technical Bid and Price Bid) up to **04/08/2026 Up to 01:30 PM at https://www.tenderwizard.com/SBIETENDER** b) EMD submission Address: Regional Manager, State Bank of India, Regional Business Office – IV, Patiala, Sheranwala Gate, The Mall, Patiala – 147001, (Pb). Contact: Desk Officer – 97795 85624
8	Date, Time and Place of opening of e-Tender.	**04/08/2026 at 02:30PM** The Regional Manager, State Bank of India, Regional Business Office – IV, Patiala, Sheranwala Gate, The Mall, Patiala – 147001, (Pb).
9	Quantum of Security Deposit(percentage)	1. Initial Security Deposit (ISD) – 2% of the Tender value including EMD. 2. Retention Money- 5% of the running bills and Total deduction of 5% of value of work including EMD, ISD.
10	Terms of payment of Bills, if any (specify the minimum value of work for payment of running account bills)	Minimum value of Running bill value - 10 Lakhs and above

11	Stipulated time for completion of theWork / supply.	**150 Days** from the date of the work order issued to the contractor
12	(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.
13	Validity period of the tender.	**Three(3) Months**
14	Defect Liability Period	**Twelve(12)Months**
15	Eligible Taxes	**A)** Income Tax & GST IT will be deducted at source as per Govt. Guidelines. **B) Reimbursement of GST will be made only on submission of proper GST invoice as per applicable GST provision. The contractor should comply with the following;** 1. Contractor should have GST Registration Number 2. Invoice should specifically/separately disclose the amount of GST levied at applicable rate as per GST provision 3. In case of Correction in the bills after scrutiny, contractor should submit fresh bills for payment 4. Contractor should timely file his GST return in accordance with GST provisions to enable the bank to claim the credit of GST paid to the contractor 5. The GST Number of State Bank of India are For Punjab – 03 AAACS8577K 1ZZ
16	Electronic Payment	Payment shall be made by way of Electronic fund transfer and the Bill will be **paid by the Branch**. Firm should furnish details of the bank, a/c no, IFSC code
17	Agency for arranging on-line bidding	**M/s. Antares Systems Limited,** **Registered Office: #24, Sudha Complex, 3rd Stage, 4th Block, Bangalore – 560079, Karnataka**. Help Desk: 7503347659 / 9044314492/ 9073677150/ 151 / 152 / 9674758506 / 9674758723/26 Contact Persons: (On working days 9 AM to 6 PM) 1.Mr. Pravesh No.: +91 9044314492 e-Mail: praveshmani.t@antaressystems.com 1. Mr. Kushal Bose Mobile No.: +91 9674758719 2. E - Mail: kushal.b@antaressystems.com.
18	Any additional Information	The quoted rate should be inclusive of materials, labour, wages, fixtures, transportation, installation, all taxes (excluding GST),wastages,Octroi,machinery,temporaryworkssuchasscaffolding,cleaning,overheads,profit,statutoryexpenses, incidental charges and all related expenses to complete the work

19	EVALUATION OF PRICE BIDS AND FINALIZATION & ASD	1. Only those Bidders who qualify in Technical evaluation would be shortlisted and the online price bids submitted by the bidders will be opened. 2. The L1 Bidder will be selected on the basis of net total of the price evaluation as quoted in the E- TENDER.
20	Additional Security Deposit	1. If the final L1 bid is unreasonably low i.e. L1 bid is less by 10.0% or more of the Estimated Cost, the contractor shall submit additional Security Deposit in the form of PBG/DD for an amount equal to difference in the 92.5 % of the estimated cost vis-a-vis final tender amount quoted by the L1 contractor. PBG/DD to be submitted within 7 days from issue of letter from Bank. 2. If the L1 bidder refuses to give the PBG, then the EMD will be forfeited and the tender will be re-invited. The L1 bidder will not be allowed to participate in the retendering process.
21	AGREEMENT	Agreement by Vendor on RS. 500/- Stamp Paper and Cost is borne by the Contractor.

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

REGIONAL MANAGER,
STATE BANK OF INDIA

INSTRUCTIONSTOTENDERERS

1. On line, E-tenders (Item Rate) are invited for **PROPOSED ELECTRICAL WORKS AT Regional Business Office - IV, at Fourth Floor, Sheranwala Gate, The Mall, Patiala, Distt. Patiala. (Pb).**

2. Submission of BIDs/Tender Documents: Tenders should be submitted online in the website **https://www.tenderwizard.com/SBIETENDER**. In addition, scanned copy of the declaration given in the tender to be signed with seal and scanned proof of dealership/empanelment letter certificate should be submitted on-line with our service provider on the website at: **https://www.tenderwizard.com/SBIETENDER**. The tender document is not required to be sent to us in hard copy.

3. Contractors should submit/send **EMD physically within due date of the tender** at the office address mentioned the in NIT document. The tender will be rejected if the tenderer fails to submit the EMD.

4. Contract documents consist of detailed plans, technical specification, schedule of quantities of the various classes of work to be done, and the set of 'conditions of contract' to be compiled with by the person whose tender may be accepted. The documents are available in the website https://www.tenderwizard.com/SBIETENDER

5. Tenders should be submitted online **(As mentioned in NIT)**.

6. **EMD amount (As mentioned in NIT)** is to be deposited in the form of Demand Draft/ Banker's Cheque payable at **Patiala** and drawn in favor of State Bank of India, otherwise the tender is liable for rejection.

7. The successful tenderer will have to pay an amount of **I**nitial **S**ecurity **D**eposit, which shall be 2% of the accepted value of the tender, by means of D.D. in favor of State Bank of India, **Patiala** The Initial security deposit is to be paid by the Contractor to Bank with EMD only. No interest is allowed on the above said security deposit (EMD, ISD)

8. Retention Money**:** From each running bill, an amount at the rate of 5% of the gross value of the running bill shall be recovered as retention money, till the total retention amount including the EMD and ISD amounts already with the Bank become 5% of the value of the contract amount. This amount is called as Total Security Deposit**,** which consists of three components

   a) EMD - Earnest Money Deposit.
   b) ISD –Initial Security Deposits.
   c) RM-Retention Money.

   The total security deposit will be kept with the Bank. And total security deposit may be refunded after the end of defects liability period (one year), provided he has satisfactorily carried out all the works and attended to rectification of all defects in accordance with the conditions of the contract. In case of failure on the part to do so, the cost of rectifying the defects through another agency shall be deducted from the amount of security deposit due to the contractor.

9. Completion of work:

   i) The work shall be considered as complete only when the certificate of virtual completion is issued by the architects/Bank.

   ii) The defects liability period as prescribed in the contract shall commence only from date of such virtual completion.

   iii) Any defect that may appear within the defects liability period shall be rectified by the contractor within reasonable time on receipt of necessary instructions from Bank to that effect.

10. The acceptance of a tender will rest with the Competent Authority, who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all the tenders received, without assigning any reasons. All tenders in whom any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

11. All compensation or other sums of money payable by the Contractor to 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 7 days of being asked to do make good in by DD any sum which have been deducted from his security deposit.

12. Tender containing any condition leading to unknown / indefinite liability, are liable to be summarily rejected.

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

14. The tenderer should quote their (own) rates for under taking the work.

15. GST as applicable will be reimbursed by Bank as specified in NIT.

16. All taxes other than GST, other statutory obligation in respect of this contract, as applicable, shall be payable by contractor including transportation and TA / DA of the workers at site and the Bank will not entertain any claim what so ever in this respect

17. I.T. will be recovered as per Government Rules

18. Time is the essence of the contract. The work should be completed on time as mentioned in the NIT. The successful Contractor will have to give CPM/PERT chart of various activities of works to be done so that the work gets completed within the stipulated time. The chart shall be submitted within 7 days from the date of acceptance of the tender.

19. Tenders for works shall remain open for acceptance for a period of 90 days from the last date of tenders. If the tenderer withdraws his tender before the expiry of the said period or makes any modifications in terms and condition of the tender which are not acceptable to the Bank, then the bank without prejudice to any other right or remedy is at liberty to forfeit the earnest money.

20. The successful tenderer, after the work is awarded, he will have to enter into an agreement with the competent authority of the bank.

21. The tenderer must co-ordinate with the other agencies such as Interior / Furnishing / Electrical / IT / Fire / AC etc.

22. The tenderer should visit the site to ascertain the working conditions and local authority regulations/ restrictions if any and other information required for the proper execution of the work.

23. The work may be carried out on any floor level as per site condition. Please note that material sand machines are required to be carried on head load and the same must be accounted in the costing. Please note that no separate cost shall be allowed for head load.

24. The quantities of various items given in the schedule of quantities are approximate. The quantities of work may vary at time of allotment / execution of work. Bank reserves the right to omit /delete any item(s) of work from the schedule at the time of allotment / before. Contractor will be paid for the actual work done at the site duly verified by the concerned official of the bank.

25. The unit price shall be deemed to be fixed price. In case of extra items, a record of labour charges paid shall be maintained and shall be presented regularly to the Employer's for checking. The settlement will be made based on figures arrived at jointly and taking unit price given in the contract assigned to the successful Tenderer. In case of extra items where similar or com-parable items are quoted in the tender, extra rates shall be based on tender rates.

26. If the rate quoted by the contractor for any item / items are not workable or abnormally lower than the market rate, the bank may demand Bank guarantee from the contractor for satisfactory completion of these work. The bank guarantee amount will be not less than 50% of the estimated amount of the items for which the rates are not workable or abnormally low. This bank guarantee will be released after completion of these works (unworkable and abnormally low rated items) to the satisfaction of the bank.

27. The contractor shall submit the bar chart/ CPM/ PERT as well as shall submit the insurance cover for the work in the form of CAR policy and Third-Party Insurance within seven (7) days from the acceptance of work order.

28. The work must be started within immediately from the date of receipt of work order/ mark out at site; whichever is later. In case of work not being started within this stipulated period, the bank reserves the right to cancel the work order duly forfeiting the Earnest money deposit

29. No employee of the Bank is allowed to work as a contractor for a period of 2 years of his/her retirement from Bank Services without previous permission of the Bank. This contract is liable to be cancelled, if either the contractor or any of his employees is any time to be such a person who had not obtained the permission of Bank as aforesaid before submission of the tender or engagement in the contractor's service.

30. Contractor should get approval of the samples of materials in advance with Bank's Engineer be-fore use of the same in the work'

31. Bank has the right to offer the contractor to modify the old material wherever/ whenever necessary instead of new supplies

32. The quoted rate should be inclusive of materials, labour, wages, fixtures, transportation, installation, all taxes(excluding GST), wastages, Octroi, machinery, temporary works such as scaffolding, cleaning, overheads, profit, statutory expenses, incidental charges and all related expenses to complete the work

33. The tenders shall summarily have rejected, anyone of the above said requirements has not been complied with.
34. The Bank will not be bound to accept the lowest tender and reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever
35. The contractor should fulfill the labour regulation guidelines stipulated by the governments
36. No advance payment in any form will be granted for the works proposed
37. Periodoftakingupthefinalbillwillbeonemonthfrom/aftersatisfactoryvirtualcompletionorthedate of submission of the final bill whichever is later.
38. Contractor is advised **not to engage child labour during the contract period**
39. The SBI reserves the right to cancel or postpone the tenders at any stage without assigning any reason.
40. Firm should be visit the website till last date of submission for changes/corrigendum if any
41. Tender documents found partly or fully modified / altered/ corrected etc. shall stand summarily rejected
42. The make of materials should be chosen strictly from the approved makes as given in the tender. Using of the multi brands is not permissible. Single brand should be used for entire project.
43. ANY CLARIFCATIONS SOUGHT AFTER OPENING OF THE TENDERS WILL NOT BE ENTERTAINED AT ANY COST.

REGIONAL MANAGER,
STATE BANK OF INDIA

FORM OF SUBMISSION OF TENDER
(To be filled by the tenderer)

Regional Manager,
State Bank of India,
Regional Business Office –
IV, Patiala,
Sheranwala Gate, The Mall,
Patiala – 147001, (Pb).

Dear Sir/s,

REF: Proposed Electrical Works at Regional Business Office - IV, at Fourth Floor, Sheranwala Gate, The Mall, Patiala, Distt. Patiala. (Pb).

I/We hereby declare that I/ We have carefully gone through the conditions laid down in the Notice Inviting Tender, General notes, General Conditions of Contract, Special conditions, Schedule of approximate quantities and rates, Form of Agreement, General Specification, Approved manufacturers/natural source of materials Technical Specifications of schedule of quantities, and clearly under stood all the same and on the basis of the same I/ We have quoted our rates in the Schedule of Quantities(i.e. BOQ)attached with the tender documents.

I / We do here by undertaken to execute and complete the whole or part of the work (as desired by you) at the respective rates quoted.

I/ We are depositing Tender cost &Earnest Money Deposit (Amounts as per NIT) by way of demand draft drawn in favor of SBI, **Patiala**; along with this tender for due execution of the work at my/our tendered rates.

In the event of this Tender being accepted I/ We agree to enter into the agreement and submit the declaration on requisite non-judicial stamp papers as and when required and execute the contract according to your form of Agreement etc., in default whereof, I/ We do hereby bind my-self / ourselves to forfeit the afore said deposit.

In the event of this Tender being accepted I/ We agree to obtain the labor license and the CAR and Third party insurance policy and deposit the balance E.M.D. amount and adhere/comply to all other instructions as given in TENDER DOCUMENT.

I / We further agree to complete the work included in the said schedule of quantities as mentioned in NIT from the date of the work order issued to commence the same.

Date of commencement shall be either one week from the date of work order issued to the contractor or the date on which mark out of work at site has been given to contractor; whichever is later.

I/We agree not to employ sub - contractors other than those that may be approved by Employer.

I / We agree to pay all taxes(except GST), insurance charges as prevailing from time to time, on such items for whom same is to be levied by/ for the government, and the rates quoted by me / us are inclusive of all the same.

Yours Faithfully,
Contractor's Signature_____
Name: _____
Address: _____

Signature of Witness:
1.
2.
3.

GENERAL NOTES

1. PROCEDURE OF FILLING AND SUBMISSION OF TENDER

a) Submission of BIDs /Tender Documents: Tenders should be submitted online in the website**https://www.tenderwizard.com/SBIETENDER**. In addition, scanned copy of the declaration to be signed with seal and scanned proof of valid dealership certificate should be submitted online with our service provider on the web site at: **https://www.tenderwizard.com/SBIETENDER**.

b) In the event of the tender being submitted by a firm, it must be signed by a member or members of the firm having legal authority to do so, and if called for, the legal documents in support thereof must be produced for inspection and the same in the case of the firm carried out by one member of a joint family. It must disclose that the firm is duly registered under the India Partnership Act. Any tender signed by a member not holding a power of attorney shall be treated as invalid.

c) Tenderer shall note that their tenders shall remain open for acceptance for a minimum period of three months from the last date of receipt of tenders. The tenders must be unconditional. Conditional tenders may be summarily rejected.

2. RATES TO INCLUDE:

While quoting their rates the tenderer should include the following if otherwise not stated herein before.

a) Necessary cost of taking samples of materials supplied by them for the work, testing of the same at Govt.'s / approved laboratory including transportation, cost of the samples, as and when required.
b) Submission of test reports of other materials as maybe specified by Bank's Engineer.

3. STORAGEOFMATERIALS:

The contractor shall not store their materials and debris within the premises other than the work site handed over to him.

5. LABOURHUTMENT:

Shelter or stay and other amenities for the labors have to be arranged by the contractor at his own expense and responsibility (outside the Bank premises).

6. IDLE LABOUR:

In case the work is held up for any site conditions not attributable to the contractors or for any decisions instructions / want of details from Employer or for any of the conditions, the contractor shall be allowed reasonable extension of time by the employer but any claim for idle labour shall not be entertained by the employer. Contractor's quoted rates should include for all such contingencies.

7. The contractor shall engage one competent person at site who shall take the instructions from the Employer. The work should not suffer due to lack of supervision, man power and materials.

8. The Contractor is required to co-ordinate his works along with other agencies working at site. He has to reimburse any of the damage made by him or any of his representatives for any of the other agency or owner at site.

9. Making of any cut-out / opening for electrical wiring / fitting in any of false ceiling, partition, Paneling, masonry work etc., and providing panels of the same finish in partitions, paneling shall note paid extra.

10. The contractor is required to fabricate a sample where required, or any item so installed for approval. Any changes made by the Architect/Employer, in the sample to the specifications as mentioned in the tender, shall not be deducted or paid extra.

11. All measurements given in the schedule hereunder are for the purpose of tender only. Payment will be made on actual measurement of the work done.

12. All measurements shall be as per relevant I.S. standards.

GENERALCONDITIONS OFCONTRACT

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 and under the direction of Employer.

1. INTERPRETATION

In constructing 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.

a) **Employer**: The term employer shall denote **SBI (State Bank of India having Regional Business office at Patiala** and any of its employees representative authorized on their behalf.

b) **Architects / Consultants:** The term Architects shall mean the Architects appointed by the employer for the purpose of preparing detailed drawing, supervision etc. It is the Bank to decide whether to appoint Architect or not and to change the Architect at any stage of work.

c) **Contractor:** The term contractor shall mean_____(Name and address of the contractor) and his /their heirs, legal representatives, assigns & successors.

d) **Site:** The site shall mean the site where the works are to be executed, i.e. interior works, at SBI Branch including any building and erection thereon, allotted by the employer for the contractors use.

e) **Site Engineer:** Any Engineer appointed from time to time by the Employer and certified in writing to the Architects and the Contractor, to be positioned at site to supervise the work.

f) **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 or Architects 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 / Architects 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 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.

- **"The Works"** shall mean the work or works to be executed or done under this contract.

- **"Act of Insolvency"** shall mean any act as such as defined by the Presidency MAINs Insolvency Actor in Provincial Insolvency act or any amending status.

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

- "**Priced Schedule of Quantities"** shall mean the schedule of quantities duly priced with the accepted quoted rates of the contractor.

- "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.

- 'Contract Price' shall mean the sum named in the Tender subject to such additions thereto or deductions there from as may be made under the provisions hereafter contained.

- '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.
- 'Net Prices' any arriving at the Contract amount the Contractor shall have added to or deducted from the total of the items if the Tender any sum, either as a percentage or otherwise, then the net price of any item in the tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in the tender as the price of that item a similar percentage or proportion ate sum. Providing always that in determining the percentage or proportion of the sum so added or deducted by the contractor, the total amount of any Prime Cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression 'net rates' or 'net prices' when used with reference to the contract or account shall be hold to mean rates or prices so arrived at.

- 'Virtual Completion' shall mean the premise is in the opinion of the Employer fit for occupation.

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

2. SCOPE OF WORK / CONTRACT

The Brief Scope of work involves the following.

1. Electrical Works. – As per BOQ & Drawings

The Contractor shall carry out and complete the said work in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Employer. The Architect with approval of Employer or Employer issue further drawings and/or written instructions, detailed directions and explanations which here after collectively referred to as 'Instructions' in regard to:

- The variation or modification of the design quality or quantity of works or the addition or omission or substitution of any work.
- Any discrepancy in the drawings or between the schedule of quantities and /or drawings and /or specification.
- The removal from the site of any defective material brought thereon by the contractor and the substitution of any other material thereof.
- The demolition removal and / or re-execution of any work executed by the contractor/s.
- The dismissal from the work of any persons employed there upon.
- The opening up for inspection of any work covered up.
- The rectification and making good of any defects under clauses herein after 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 contractor/s within seven days. No works, for which rates are not specifically mentioned in the priced schedule of quantities, shall be taken up without written permission of the Employer. The employer as provided in clause "variation" shall fix rates of items not mentioned in the priced schedule of quantities.
Regarding all factory-made products for which ISI marked products are available, only products bearing ISI marking shall be used in the work.

3. TENDERER SHALLVISIT 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 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. Work to be done in phase manner.

4. TENDERS
The Employer reserves the right to reject the lowest or any tender.
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 the contractor's analysis.
The works will be paid for as "measured work" on the basis of actual work done and not as "lump sum" contract, 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 lump sum charges as will be assessed to be payable by the Employer/ Architects.
The employer has power to add, omit from any work as shown in drawings or described in specificationsorincludeinscheduleofquantitiesandintimatethesameinwritingbutnoaddition, 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.

5. AGREEMENT
The successful contractor will be required to sign agreement in accordance with the draft agreement enclosed and the schedule conditions. The contractor shall pay for all stamps and legal expenses, incidentalthereto.Howeverthewrittenacceptancebytheemployerofatenderwillconstituteabinding contract between the employer and the person so tendering such formal agreement is subsequently executed.

6. AUTHORITIES, NOTICES, PATENT RIGHTS AND ROYALTIES:
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 / Architects 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 identify the Employer against all claims in respect of patent rights, designs, trade-marks or name or the protected rights in respect of any constructional plant, machine, work or material used for or in connection with the works or temporary works and from and against all claims, demands, proceedings, damages, costs, charges, and expenses whatsoever in respect thereof or in relation thereto. The Contractor shall defend all actions arising from such claims, unless he has in-formed the Employer/ Architects, before any such infringement and received their permission to proceed and shall himself pay all royalties, license fees, damages, coat and charges of all and every sort that maybe legally incurred in respect thereof.

7. TAXES AND DUTIES

The tenderers must include in their tender prices quoted for all taxes (except GST) and duties royalties, cess, local charges if applicable. No extra claim on this account will in any case been retrained.

8. NOTICES AND STATUTORY REGULATIONS:

The contractor shall give all notices and pay all fees and shall comply all Acts and Regulations for the successful completion of the contract works.

The whole of the work is to be complied with as per the requirements and bylaws of the relevant statutory authorities including contract labor (Regulation and Abolition) Act1970.

9. QUANTITY OF WORK TO BE EXECUTED

The Schedule of Quantities unless otherwise stated shall be deemed to have been prepared in accordance with the Standard Procedure shall be considered to be approximate and no liability shall attach to the employer for any error may be discovered therein. The Employer reserves the right to execute only a part or the whole or any excess thereof without assigning any reason therefore.

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

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 his regard.

11. Tenderer should deposit EMD as mentioned in the NIT.

12. CONTRACTOR TO PROVIDE EVERY THING 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 provide 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.

13. TIME OF COMPLETION, EXTENSION OF TIME & PROGRESS CHART

The Contractor shall be allowed admittance to the site on the 'Date of Commencement' stated in the Appendix, and he shall thereupon and forthwith begin the works and shall regularly proceed with to complete the same. On or before the 'Day of Completion' stated in the Appendix subject nevertheless the provision for the extension of time hereinafter contained.

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

a) By force major or
b) By reason of any exception all inclement weather or
c) By reason of proceedingstakenorthreatenedbyordisputewithadjoiningorneighboringownersofpublic authorities arising, than through the Contractor's won defaulter
d) Bytheworksordelaysofthecontractorstradesmenengagedornominatedbytheemployer/Architectand not referred in the Schedule of Quantities sand /or specifications or
e) ByreasonofFurnishing,commotion,localcombinationofworkmenorstrikeorlock-outeffectinganyofthe buildings traders or
f) In consequence of the Contractor not having in due time, necessary instructions from the Employer for which he shall have specifically applied in writing ahead of time, giving reasonable time to prepare such instructions, the employer shall make a fair and reasonable extension of time for completion of the Contract works
In case of such strike or lock-out, the Contractor shall as soon as possible give written notice thereof to the employer, but the Contractor shall nevertheless constantly use his endeavors to prevent delay and shall do all they may reasonably be required, to the satisfaction of the employer to proceed with the work.
The Contractor on starting the works shall furnish to the Employer / Architect a PERT / CPM Program for carrying out the work stage in the stipulated time for the approval of Architect / Employer and follow strictly the approved time schedule incorporating charges if any, to ensure the completion of the work in stipulated time. A graph or chart on individual work shall be maintained showing the proportionate progress of work week by week a weekly progress report stating the number of skilled and un skilled laborers employed on the work, working hours done, place, type, and quantity of work done during the period.
The Contractor must inform the employer within 10 days in advance of all drawings and detailed required by him from time to time. The Contractor shall adhere to the approved program and arrange for the materials and labour etc. accordingly.
Despite repeated instructions, if the Contractor fails to show proportionate progress of the work, the Architect / Employer may take suitable action and deemed fit without prejudice to any terms and conditions of the contract

14. LIQUIDATED DAMAGES
Should the work be not completed to the satisfaction of the Employer /Architects within the stipulated period, the contractorshallbeboundtopaytotheEmployerasumcalculatedasgivenbelowby way of liquidated damages and not as penalty during which the work remains un-commenced or unfinished after the expiry of the completion date.
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 0.5% of contract amount for each week beyond the date that the work remains incomplete subject to maximum of 5%of the contract value

15. 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 /Architects during the execution of the work and to his entire satisfaction.

All mandatory tests shall be carried out as per CPWD specifications. If required by the Employer /Architects, the contractor shall have to carry out tests on materials and workmanship in approved materials testing laboratories or as prescribed by the Employer / Architects 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, transporting, testing etc., shall have to be borne by the contractor. No extra payment on this account should in any case been trained.

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, and other charges and must be the best of their kind available and the con-tractors 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 when so directed by the Engineer and written approval from Employer must be obtain prior to placement of order.**

Any damage (during the work) to any part of the work or to the premises for any reasons due to rainstorm 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 the secures.

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 beamed good by the contractor at his own expenses.

Contractor should take all precaution to safeguard the flooring and if any damages to the flooring should be rectified by the contractor in the same quality at his own cost.

16. 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 / Architects 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 con-tractor refuses to comply with the order the Employer shall have the power to employ and pay otheragenciestocarryouttheworkandallexpensesconsequentthereonorincidentaltheretoascertified by the Employer / Architects 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, shall relieve the contractor from his liability in respect of unsound work orbed materials.

17. SITE ENGINEER

The Employer may appoint a Site Engineer or clerk of works who shall be representative of the Employer. The duties of the Employer representative are to watch and supervise the works and to test any materials to be used of workmanship employed in connection with the works. He shall have no authority either to relieve the Contractor of any of his duties or obligations under the Contract, or except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

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

The Employer's Representative shall have to give notice to the Contractor or his foremen about then on-approval of any work or materials and such works shall be suspended or the use of such material should be discontinued until the decision of the employer/Architect is obtained, the work will from time to time be examined by the Architect or the Employer's representative but such examinations shall not in any way exonerate the Contractor from the obligation to remedy defects which may befoundtoexistatanystageoftheworkofafterthesameiscompleted.Subjecttothelimitationsofthiscause, the Contractor shall take instruction from the Architect /Employer.

18. 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 / Architects. The contractor shall engage at least one experienced Engineer 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 not employ labour below the age of sixteen years and who is not an Indian National.

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

LOCAL LAWS, ACTS, REGULATIONS

The contractor should abide by the central labour regulation and also shall strictly adhere to all prevailing labour laws inclusive of contract labour (Regulation and abolition act of 1970) and other safety regulations. The agency shall comply with the provision of all labour legislation including the latest requirements of all the acts, laws, any other regulations that are applicable to the execution of the tests.

- Minimumwagesact,1948(Amended)
- Payment of wages act,1936(Amended)
- Workmen's compensation act1923 (Amended)
- ContractlabourRegulationandAbolitionact1970andCentral rules1971(Amended)
- Chief Labour Commissioner(C),Ministry of Labour & Employment vide GazettenotificationNo.F.No.1/13(3)/2017-LS-IIdated 20th April 2017 on minimum wages
- Apprenticeact1961(Amended)
- Industrial employment (Standing order)Act1946 (Amended)
- Personalinjuries(compensationinsurance)Act1963andothermodifications
- Employees'ProvidentFundandMiscellaneousProvisionsAct1952andamendmentthereof
- Shop and Establishment Act
- Employer's Liability Act.
- Any other Actor enactment thereof and rules framed there under from time to time.

The contractor shall keep the Employer saved harmless an 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 laborers are housed or accommodated, for the prevention of small pox, cholera, plague, typhoid, malaria and other contagious diseases. The contractor shall provide, maintain and keep in good sanitary condition adequate sanitary accommodation and provide facilities for pure drinking water at all times for the use of men engaged on the works and shall remove and clear away the same on completion of the works. Adequate precautions shall be taken by the contractor to prevent nuisance of any kind on the works or the lands adjoining the same. The contractor shall arrange to provide first aid treatment to the laborers 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.

19. DISMISSAL OF WORKMEN

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

damages against the Employer or any of their officer or employee.

20. 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

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21. INSURANCE & DAMAGE TO PERSONS AND PROPERTY ETC.

The contractors under the terms of the contract are required to keep the works duly insured under CAR Policy(Contractor All Risk Policy) as well as third Party Insurance for the value of110% of the Project value or Tender value until the Completion of the project or handing over whichever is later. The insurance policies should be taken in the joint names by the contractors and the same should be renewed at appropriate time.

Thecontractorshallberesponsibleforallinjurytotheworkorworkmentopersons, 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 includeinter-alias,anydamagetobuildingswhetherimmediatelyadjacentorotherwise,andanydamage 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 anysuchinjuryordamagestothepersonorpropertyasaforesaidandalsoinrespectofanyclaimmadein 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 affect the insurance necessary and indemnify the Employer entirely from all responsibility in this respect must be effected jointly in the name of the Employer and contractor and the policy lodged with the Employer. 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 affected from the very initial stage. The contractor shall 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 to or to become due to the contractor.

22. MEASUREMENTS

Before taking any measurement of any work the Site Engineer or employer's representative 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 Site Engineer or by the subordinate deputed by him as the case maybe is final and binding on the contractor and contractor shall have no right to dispute the same.

The Employer / 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.

23. PAYMENTS

All bills shall be prepared by the contractor in the form prescribed by the Employer's / Architects. Normally one interim bill shall be prepared each month subject to minimum value as stated in these

documents.
The bills in proper forms must be duly accompanied by detailed measurements in M-book in support of the qualities of work done and must show deductions for all previous payments, retention moneyed.
The Architect shall issue a certificate after due scrutiny of the contractor's bill stating the amount duet the contractor from the Employer and the contractor shall be entitled to payment thereof, within the period of honoring certificates named in these documents.
The Employer will deduct IT, other applicable taxes if any(but GST is reimbursable) and retention money as described in this document. 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, ore -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 anyway 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 week of the date fixed for completion of the work or of the date of certificate of completion and payment shall be made within one month from the date of receipt of the bill.

Final Payment
The final bill shall be accompanied by a certificate of completion from the Architects. Payments of final bill shall be made after deduction of Retention Money as specified, which shall be refunded after the completion of the Defects Liability Period after receiving the Branch Manager/Engineer's certificate that the contractor has rectified all defects to the satisfaction of the Employer. The acceptance of the payment of the final bill by the contractor would indicate that he has no further claim in respect of the work executed.

24. VARIATION / DEVIATION
The tender rates shall be fixed and applicable for any increase or decrease in the tendered quantities. The Employer / Architect can increase or decrease any quantities to any extend or even delete particular item as per the site requirements and the contractor shall not be paid anything extra on this ac-count. 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 based on prevalent fair price of labour, material and other components as required with 15% towards contractor's profit and over-heads.

25. SUBSTITUTION
Should be contractor desire to substitute any materials and workmanship, he/they must obtain the approval of the Employer/ Architects in writing for any such substitution well in advance. 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.

26. CLEARING SITE ON COMPLETION
On completion of the works the contractor shall clear away and remove from the site all machinery, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a work man like condition to the satisfaction of the Employer/Architects.

27. DEFECTS AFTER COMPLETION

The contractor shall make good at his own cost and to the satisfaction of the Employer all defects, 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 tote contractor a sum equivalent to the cost of amending such work and in the event of the amountretainedbeinginsufficientrecoverthatbalancefromthecontractorfromtheamountretained(retentio n money) together with any expenses the Employer may have incurred in connection there with.

28. CONCEALED WORK

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

29. IDLE LABOUR

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

30. SUSPENSION OF WORKS

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 no-tic 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 compiled 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 pre-scribed, the employer may proceed asprovidedinclause31 (Termination of Contract by Employer)

31. 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 insolvent 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 das 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 theeffectashereinaftermentioned,butwithouttherebyeffectingthepowersoftheemployeroftheobligations 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 favor 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 per-son 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 to remove his surplus materials 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 contractor for the amount so realized. Any expenses or losses incurred by the employer in getting the amount payable to the contractor by way of selling his tools and plants or due on ac-count of work carried out by the contractor prior to engaging other contractors or against the Security Deposit.

32. ARBITRATION

All disputes or differences of any kind whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof this contract or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after determination foreclosure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding) shall after writ-ten notice by either party to the contract to the other of them and to the Employer hereinafter mentioned be referred for adjudication tousle Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, the Employer will send within thirty days of receipt of the notice, to the contractor a panel of three names of persons who shall be presently unconnected with the organization for which the work is executed from the following categories of Arbitrators":-

a) Retired High Court/Supreme Court judge who have experienced in handling Arbitration Cases.
b) Member of Council of Arbitrators
c) Fellow of the Institution of Engineers
d) EminentRetiredChiefEngineerfromState/CentralPWD/Publicsectorundertakingofgoodreputation and integrity
e) Fellow of Indian Institute of Architects

The contractor shall on receipt of the names as aforesaid, select any one of the person's name to be appointed as a sole Arbitrator and communicate his name to the Employer within thirty days of receipt of the names. The Employer shall thereupon without any delay appoint the said person as the Sole Arbitrator. If the contractor fails to communicate such selection as provided above within the period specified, the Competent Authority shall make the selection and appoint the selected person as the Sole Arbitrator.

If the Employer fails to send to the contractor the panel of three names as aforesaid within the period specified, the contractor shall send to the Employer a panel of three names of persons who shall

allbeunconnectedwitheitherparty.TheEmployershallonreceiptappointhimastheSoleArbitrator.If the Employer fails to select the person and appoint him as the Sole Arbitrator within 30days of receiptofthepanelandinformthecontractoraccordingly,thecontractorshallbeentitledtoappointoneofthepersons from panel as the Sole Arbitrator and communicate his name to the Employer. If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason what's over another Sole Arbitrator shall be appointed as afore said.

The work under the Contract shall, however, continue during the arbitration proceedings and no payment due or payable to the contractor shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issued notice to both the parties fixing date of the first hearing.

The Arbitrator may from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The arbitrator shall give a separate award in respect of each dispute or difference referred to him. The Arbitrator shall decide each dispute in accordance with the terms of the contract and give a reasoned award.

The venue of arbitration shall be such place as may be fixed by the Arbitrator in his Sole discretion.

The award of the Arbitrator shall be final and binding on the both the parties.

Subject to aforesaid the provisions to the Arbitration Act. 1992 or any statutory modification or re-enactment thereof and the rules made there under, and for the time being in force, shall apply to the arbitration proceeding under this clause.

The Employer and the contractor hereby also agree that arbitration under clause shall be condition precedent to any right to action under the contract with regard to the matters hereby expressly agreed to be so referred to arbitration

SPECIAL CONDITIONS OF CONTRACT FOR ELECTRICAL WORK

1. **SCOPE OF WORK: -**

The scope of work to be carried out under this contract comprises of the supply, installation, testing and commissioning of Electrical work complete as listed out in Schedule of Quantities. The general character and scope of work to be carried out under this contract is presented in drawings and specifications. The contractor shall carry out and complete the said work under this contract in every respect in conformity with the contract documents and with direction of and to the satisfaction of the bank engineer/ Consultant/ Consultant. The contractor shall furnish labour, materials, equipment, transportation and incidentals necessary for the completion of work as described in the Tender Documents.

2. **FEES AND PERMITS**: -

The Contractor shall obtain all permits/licenses and pay for any and all fees required for the installation, inspection and the commissioning of the work.

3. **DRAWINGS**: -

The Drawings prepared by the consultants are indicative only of the general arrangement of the installation work. The Contractor shall follow these drawings and specifications & preparing his shop drawings and subsequent installation. He shall check the drawings of other trades to verify space for his installation.

1. Shop drawings shall be provided of the Main and Sub-Main Switchboards, Distribution Boards, Cable Trays, Reactive Power Compensation Panel, and any other switchboards and panels, wherever applicable and approval shall be obtained from the Consultant / Developer before commencing fabrication or procurement.

2. Any equipment or switchboard manufactured without the written consent of the Consultant / Developer prior to the approval drawings shall be liable for rejection.

Drawings show general run of cables, approximate locations of outlets and equipment, utility symbols and schematic diagrams of no dimensional significance. Refer to the Consultant drawings for locations and also obtain approval from the Consultant / Developer wherever dimensions are not shown, or locations cannot be determined from the drawings. Do not scale drawings to obtain locations

4. **MEASUREMENTS OF WORK**:-

Payment for Conducting, cables, earth strips and wires etc. will be made on linear measurements and will be measured up to and including the bends.

5. **TESTING**:-On completion of the installation the testing will be done in conformity with the stipulated performance specifications. Any shortcoming detected in the system/materials/ workmanship shall be rectified by the contractor to the entire satisfaction of the consultant without any extra cost to the owner. The installation shall be tested again after removal of the defects and shall be commissioned only after approval by the competent inspecting authority and the Consultant/Owner.

1. The Contractor shall notify the Consultant at least 7 working days before testing of each system. The Consultant reserves the right to be present when such tests are being made.

2. If the Electrical Inspectorate requires manufacturer's test reports for any equipment used in the project, the Contractor shall obtain such approvals at no extra cost to the client. Such approved reports shall be handed over to the Consultant / client.

Calibration certificates shall be obtained from the Meter and Relay Testing Department of the Electricity Board for all relays and meters used in the project at no extra cost to the client.

6. **COMPLETION CERTIFICATE: -**

On completion of the installation a certificate in an approved form shall be furnished by the contractor. The contractor shall be responsible for getting the entire installation duly approved by the Electrical Inspector or other concerned authorities, if any, and shall bear all expenses in connection with the same.

7. SCOPE OF WORK

The scope of work to be carried out under this contract briefly comprises of:

a. **INTERNAL ELECTRICAL WORK**: Supply, Installation, connecting, testing and commissioning of the following:

b. i) Conducting and wiring for all light points, exhaust fans, Light & power socket outlets, three phase outlets and equipment wiring.
ii) Complete ear thing system
iii) Conducting for Telephone system.
iv) Conducting for Computer system.
v) All Cables, Mains & Sub-Mains
vi) All Final Distribution Boards.
- All Light fixtures.
- Fire detection system

b) The contractor shall carry out and complete the work under this contract in every respect in confirming with the current rules and regulations of the local Electricity Authority, stipulations of the Indian Standard Institution, and with the directions of and to the satisfaction of the owner. The contractor shall furnish all labour, material, appliances, equipment, transportation and incidentals necessary for providing, installing, testing and commissioning of the whole electrical installation as specified herein and shown as drawings.

This also includes any materials, appliances, equipment and incidental work not specifically mentioned herein or noted on the drawings/documents as being furnished or installed but which are customary to make the installation in working order. The work shall include all incidentals and jobs connected with Electrical installation such as earthing work and cutting chases/holes and making good the same and grouting and equipment.

All Civil works in connection with the Electrical Installation including supply, laying and fixing of necessary inserts, hooks, brackets and sleeves etc

On completion of the work and before issuing of virtual completion certificate the contractor shall submit to owner "As installed drawings" showing all the details of work done by him.

The contractor shall have a valid contracting license before starting the work and till the completion of work.

TECHNICAL SPECIFICATION

1 SPECIFICATIONS FOR INTERNAL WIRING

1.1. SYSTEM OF WIRING:

The system of wiring shall consist of single/multi core FRLS PVC insulated stranded copper conductor wires in non-metallic FRLS PVC conduits/ metallic M.S. conduits as called for in the BOQ. All conduits shall be on the surface, (supported from the Ceiling), in the False Ceiling and concealed in other areas where RCC slab is provided unless otherwise called for in the drawings. All down conduits shall be concealed unless otherwise called for.

1.2. GENERAL

Prior to laying of conduits, the Contractor shall get approved the conduit layout indicating the route of conduit, number and size of conduits, location of junction/ inspection/pull boxes, size and location of switch boxes, point outlet boxes and other details. These conduit layouts shall be got approved by the Consultant and then only conduit layout should be started. Any modification or suggestions shall be approved by the Consultant before the laying of conduits.

1.3. MATERIALS:

M.S. conduits shall conform to Indian Standards IS: 1653 - 1964 -Specification for Rigid Steel conduits for Electrical wiring with the latest amendments.

M.S. CONDUITS:

M.S. conduits shall be solid drawn or lap welded conduits. Stove enameled inside and outside with minimum wall thickness of 1.6 mm for conduits up to 25 mm diameter and 2.0 mm wall thickness for conduits 32 mm diameter and above.

FRLS PVC conduits to be used for concealed work for all systems except Fire Alarm & Computer system where M.S. conduits shall be used. FRLS PVC conduits shall conform to Indian Standards IS: 9537(Part-3)-1983 -Specification for conduits for Electrical Installation (Part-I) General Requirements.

FRLS PVC CONDUITS:

FRLS PVC conduits shall be rigid, plasticized, heavy gauge having 1.8 mm wall thickness up to 20 mm diameter and 2.0 mm wall thickness for all sizes above 20 mm diameter. Minimum size of conduit shall be 20 mm dia. Minimum size of conduit for Power point wiring shall be 25 mm dia. The conduits shall be delivered to the site of construction in original bundles and each length of conduit shall bear the label of the manufacturer. The number of insulated copper wires that may be drawn into the conduits of various sizes are given below and the fill shall not exceed 40% the maximum permissible number of 650/1100 volts grade single/multi core PVC insulated copper conductor wires of different sizes, that may be drawn into rigid metallic or non-metallic conduits.

	SIZE OF WIRE			**SIZE OF CONDUITS (MM)**	
Nominal cross-Sectional area of wires in sq. mm	20	25	32	40	50 nominal dia in mm
	(Maximum number of wires)				
1.5	5	6	18	-	-
2.5	3	4	10	-	-
4.0	2	3	5	10	-
6.0	-	4	6	8	-
10.0	-	-	3	4	-
16.0	-	-	-	3	5
25.0	-	-	-	2	3

1.4 FRLS PVC CONDUIT ACCESSORIES & CONNECTIONS:

The accessories used for FRLS PVC conduits shall conform to Indian Standards IS: 3419-1988-(Specification for fittings for non-metallic conduits).PVC conduits shall be joined by means of screwed or plain couplers. Where there

are long runs of straight conduits, inspection boxes shall be provided at intervals as approved by the consultant. The threads of the pipe and sockets shall be free from grease and oil. It shall be thoroughly cleaned before making the screwed/plain joints. Proper jointing materials as recommended by manufacturers shall be used for jointing of FRLS PVC pipes. Use PVC couplers and connectors for FRLS PVC pipe connections and terminations in boxes. All the joints shall be fully watertight. Junction boxes and running joints shall be provided at suitable places to allow for subsequent extensions if any, without undue dismantling of conduit system. As far as possible diagonal run of conduits shall be avoided. Junction between conduit and adapter boxes, back outlet boxes, switch boxes and the like must be provided with entry spouts and smooth PVC bushes. Joints between conduit and iron clad Distribution Boards or control gear shall be affected by means of conduit couplers into each of which will be coupled smooth PVC bush from the inside of box or case. Conduit system shall be erect and straight as far as possible. All jointing methods shall be subject to the approval of the consultant.

BENDS IN CONDUITS:

Where necessary bends or diversions may be achieved by means of bends and or circular inspection boxes with adequate and suitable inlet and outlet screwed joints. In case of recessed system each junction box shall be provided with a cover properly secured and flush with the finished wall surface, so that the conductors inside the conduits are easily accessible. No bend shall have a radius of less than 2.5 times the outside diameter of the conduit. Conduits shall be cold bend by means of a Bending spring available with the manufacturers. In case it is not available then Heat may be used to soften the PVC conduits, by filling sand in the pipe. Use of PVC conduit in places where ambient temperature is 60 degrees or above is prohibited. PVC Solvent shall be used for joints between conduits, conduits & Junction box etc. PVC checknuts and bushes shall be used for joining conduit with outlet boxes. PVC Closures shall be provided on unused mouths of Junction boxes.

Separate conduits shall be provided for the following system.

i) Lights, Exhaust fans & 5A Light sockets.
ii) Power sockets
iii) Telephone System
iv) Television, Computer & Music system
v) Emergency System.
vi) Public Address System
vii) Fire Alarm System.

Separate switchboards/outlets shall be provided for the following system.

i) Lights, Exhaust fans & 5A Light sockets.
ii) Power sockets & A/C outlets
iii) Telephone System
iv) Television, Computer & Music system
v) Emergency System.
vi) Public Address System
vii) Fire Alarm system.

1.5 FIXING CONDUITS:

Conduits and junction boxes shall be kept in position and proper holdfasts shall be provided. Conduits shall be so arranged as to facilitate easy drawing of wires through them. Adequate junction boxes of approved shape and size shall be provided. All conduits shall be installed so as to avoid steam and hot water pipes. After the conduits, junction boxes, outlet boxes & switch boxes are installed in position their outlets shall be properly plugged so that water, mortar, insects or any other foreign matter does not enter into the conduit system. Exposed conduits shall be fixed by means of spacer bar/ saddles at intervals of not more than 600 mm in normal run and 500 mm from both sides of fitting or accessories. The saddles shall be of 3 mm x 19 mm mild steel flat, properly treated with primer and painted, securely fixed to support by means of nuts and bolts/raw bolts and MS screws as required.

Conduits shall be laid in a neat and organized manner as directed and approved by the Consultant. Conduit runs shall be planned so as not to conflict with any other service pipelines/ducts.

Where exposed conduits are suspended from the structure they shall be clamped firmly and rigidly to hangers of design to be approved by the Consultant. Where hangers are to be anchored to reinforced concrete appropriate inserts and necessary devices for their fixing shall be provided at the time of fixing. Making holes or openings in the concrete will generally not be allowed. In case it is unavoidable prior permission of the Consultant shall be obtained. Conduits shall be fixed in the chase by means of staples not more than 600 mm apart and the chase filled with cement mortar 1 : 4 . Cutting of horizontal chases in walls is prohibited.

1.6. PROTECTION

To minimize condensation or sweating inside the conduit pipes all outlets of conduit system shall be adequately ventilated as directed and approved by the Consultant. All screwed and secreted connections shall be adequately made fully watertight by the use of proper jointing materials i.e. Trampoline for PVC conduits & white lead for metal conduits.

1.7. SWITCH-OUTLET BOXES AND JUNCTION BOXES

All boxes shall conform to Indian Standards IS: 5133(Part-1)-1969 (Specification for boxes for enclosure of Electrical accessories) with the latest amendments. All outlet boxes for switches, sockets & other receptacles shall be fabricated from 1.6mm thick mild steel sheets duly painted with rust proof paint (zinc passivity) as called for, having smooth external & internal surfaces to true finish. Junction boxes and outlet boxes in contact with earth or installed in areas exposed to the weather shall be of 2mm thick mild steel and painted. Where called for, outlet boxes for receiving switches, telephone outlets T.V. outlets, power plugs etc. shall be fabricated to prove shape and size to suit the cover plates of approved make for different utilities. The cover plates shall be of best quality Hylam sheets or ISI grade Urea Formaldehyde Thermosetting insulating material which shall be both mechanically strong and fire retardant, as approved by the Consultant. Proper supports shall be provided in the outlet boxes to fix the cover plates of switches as required. Separate screwed earth terminal shall be provided inside the box for ear thing purpose. All boxes shall have adequate number of knockout holes of required diameter for conduit entry. Where called for outlet boxes for receiving switches and fan regulators in one box, shall be fabricated to approved shape and size to accommodate fan regulators and switches to be fixed on grid plates. These boxes shall be covered with Hylam sheets or ISI grade Urea Formaldehyde Thermosetting insulating material which shall be both mechanically strong and fire retardant. All junction boxes pull boxes and outlet boxes shall be provided with sheet cover Urea Formaldehyde Thermosetting insulating material. The box cover shall be secured to the box with adequate number of round head brass screws of approved make. Outlets exposed to the weather shall be fully weather tight, complete with rubber gasketed covers, glass where used shall be fully heat resistant for the duty. The outlet boxes shall be painted with two coats of bit mastic paint before they are fixed in position. All Outlet boxes fixed in concrete/recessed in wall shall be of a minimum depth of 55mm.

1.8. INSPECTION BOXES

Rust proof (Zinc passivity) inspection boxes of 1.6mm thick mild steel sheet and of required size, having smooth external and internal finish shall be provided to permit periodical inspection and to facilitate removal and replacement of wires when required. Inspection boxes shall be mounted flush with ceiling/walls finished surface and shall be provided with screwed covers of Urea Formaldehyde Thermosetting insulating material sheet cover secured to the box with brass screws. Adequate holes shall be provided for ventilation in the inspection box covers.

1.9. CONDUCTORS

FRLS PVC insulated multistoried copper conductor wires of 1100 Volts grade shall be used for three phase distribution and FRLS PVC insulated multistoried copper conductor wires of 1100 V grade shall also be used for Single phase distribution and shall conform to IS : 694 -1964 with the latest amendments and shall be ISI marked.

1.10. BUNCHING OF WIRES

Wires carrying current shall be so bunched in the conduit that the outgoing and return wires are drawn into the same conduit. Wires originating from two different phases shall not be run in the same conduit.

1.11. DRAWING OF CONDUCTORS

The drawing and jointing of copper conductor wires shall be executed with due regard to the following precautions,

while drawing insulated wires into the conduits. Care shall be taken to avoid scratches and kinks which cause breakage of conductors. There shall be no sharp bends.

Insulation shall be shaved off for a length of 15mm at the end of wire like sharpening of a pencil and it shall not be removed by cutting it square or ringing.

FRLS PVC insulated copper conductor wire ends before connection shall be properly soldered (at least 15mm length) with special Cu solder for copper conductor or shall be properly crimped with copper lugs/sockets as the case may be. Strands of wires shall not be out for connecting to the terminals. All strands of wires shall be soldered at the end before connection. The connecting brass-screws shall have flat ends. All looped joints shall be soldered and connected through terminal block/connectors. The pressure applied to tighten terminal screws shall be just adequate, neither too much nor too less. Conductors having nominal cross-sectional area exceeding 6 Sq mm shall always be provided with cable sockets.

At all bolted terminals, brass flat washer of large area and approved steel spring washers shall be used. Brass nuts and bolts shall be used for all connections.

Only certified wiremen and cable jointers shall be employed to do jointing work. All wire shall bear the manufacturer's label and the voltage grade at one-meter intervals for the full length of coil and shall be brought to site in new and original packages.

The sub-circuit wiring for points shall be carried out in looping system and no joint shall be allowed in the length of the conductors. No wire shall be drawn into any conduit, until all work of any nature, that may cause injury to wire is completed. Care shall be taken in pulling the wires so that no damage occurs to the insulation of the wire. Before the wires are drawn into the conduits the conduits shall be thoroughly cleared of moisture, dust, and dirt or any other obstruction by drawing dry cloth through the conduits. The minimum size of FRLS PVC insulated stranded copper conductor wire for all sub circuit wiring for lights, exhaust fans, ceiling fan and 5A Light sockets points shall be 1.5 Sq mm. In case of power circuit not more than two 15 Amp power outlets shall be grouped in one circuit, wiring for the first power outlet shall be carried out with FRLS PVC insulated 6.0 sq mm copper conductor wires. Wiring for the second power outlet shall be carried with FRLS PVC insulated 4.0 sq mm copper conductor wires. All power outlets shall be connected with 4.0 sq mm FRLS PVC insulated copper conductor wires to the earth terminal of outlet. Separate circuit shall run with FRLS PVC insulated 4.0 sq mm copper conductor wires for water heaters, kitchen equipment, window Air conditioners and similar outlets at locations as shown on drawings.

The minimum size of wire from final distribution board to first tapping point in the circuit shall be 2.5 Sq mm FRLS PVC insulated stranded copper conductor wires. Circuit shall not have more than a total of 8 points of fans, 5A Light sockets and Light points and its load shall not exceed 800 watts. Not more than two power circuits shall be drawn through the same conduit. Separate earth wire shall run for each circuit. In case two circuits of the same phase are running in the same conduit then a common earth wire is permissible. The size of earth wire for all the light points, ceiling fans, exhaust fans, light sockets, outlet boxes etc. shall be 1.5 sq mm FRLS PVC insulated copper conductor wires.

1.12. JOINTS

All joints shall be made at main switches, distribution boards, socket outlets, lighting outlets and switch boxes only. No joints shall be made inside conduits and junction boxes. Conductors shall be continuous from outlet to outlet. Joints where unavoidable, due to any specified reasons, prior permission in writing shall be obtained from the Consultant before making such connections.

1.13. MAINS AND SUB-MAINS

Mains and sub-mains wires where called for shall be of the rated capacity and approved make. Every main and sub-main shall be drawn into an independent adequate size conduit. Adequate size draw boxes shall be provided at convenient locations to facilitate easy drawing of the mains and sub-mains. An independent earth wire of proper rating shall be provided. The earth wires shall run along the entire length of the mains and sub-mains. The earth wires shall be fixed to conduits by means of suitable copper clips at not more than 1000mm distance. Where mains and sub-main cables are connected to switch gears, sufficient extra length of sub-main and main cable shall be provided to facilitate easy connections and maintenance.

1.14. LOAD BALANCING

Balancing of circuits in three phase installation shall be planned before the commencement of wiring, shall be got approved by the Consultant and shall be strictly adhered to.

1.15. COLOUR CODE OF CONDUCTORS

Colour code shall be maintained for the entire wiring installation; red, yellow, blue for three phases and "off" circuit black for neutral and green for earth (or bare earth wire)

Telephone Multicourse cables shall be of approved make and shall conform to following specifications.

i) Type of conductor …. Electrolytic Annealed Tinned Cu conductor. (ATC)

ii) Diameter of Conductor ... 0.61 mm dia uniform (minimum size)

i) Weight of conductor.... 2.52 Kg/Km minimum.

ii) iv) Resistance of conductor at 20 degree... 60 Ohms/Km, v) Radial Thickness of PVC insulation...0.3mm $\pm$ 0.05mm uniform

vi) Radius Thickness of PVC sheathing ... 1.2mm uniform $\pm$ 0.2mm

vii) Overall diameter of insulated conductor. 1.2mm uniform

viii) High voltage Test. Able to withstand up to 500 volts D.C. up to 12 hours immersion in water.

1.16 **M.S. CONDUIT ACCESSORIES & CONNECTIONS**:

The accessories used for M.S. conduits shall conform to Indian Standards IS: 3837-1966-(Specification for fittings for Rigid steel conduits with the latest amendments. M.S. conduits shall be joined by means of screwed or plain couplers. Where there are long runs of straight conduits, inspection boxes shall be provided at intervals as approved by the Consultant. The threads of the pipe and sockets shall be free from grease and oil. It shall be thoroughly cleaned before making the screwed/plain joints.

Proper jointing and cleaning materials as recommended by manufacturers shall be used for jointing and cleaning of M.S. pipes. Use M.S. couplers and connectors for M.S. pipe connections and terminations in boxes. All the joints shall be fully watertight. Junction boxes and running joints shall be provided at suitable places to allow for subsequent extensions if any, without undue dismantling of conduit system. As far as possible diagonal run of conduits shall be avoided. Junction between conduit and adapter boxes, back outlet boxes, switch boxes and the like must be provided with entry spouts and smooth M.S. bushes and M.S. Checkouts. Joints between conduit and iron clad Distribution Boards or control gear shall be affected by means of conduit couplers into each of which will be coupled smooth M.S. bush from the inside of box or case. Conduit system shall be erect and straight as far as possible. All jointing methods shall be subject to the approval of the Consultant.

M.S. CONDUIT CONNECTIONS:

Conduit connections for MS conduits shall be screwed metal to metal and be painted with one coat of self-etching zinc chromate primer and two coats of enamel paint. The threads and sockets shall be free from grease and oil. Connections between screwed conduit and sheet metal boxes shall be by means of a brass hexagon smooth bore bush, fixed inside the box. Check outs to be provided on inside and outside of box and connected through a coupler to the conduit or as directed by the Consultant. The joints in the conduits shall be free of burrs to avoid damage to insulation of conductors while pulling them through the conduits. Connections between PVC and MS conduits shall be through a junction box. Direct connection between PVC and MS conduits is not allowed.

2 CABLES

2.1 GENERAL

MV Cables shall be supplied, laid tested and commissioned in accordance with drawing specifications, relevant Indian Standards specification, Indian Electricity Act and manufacturer's instructions. The cable shall be delivered at site in original drums with manufacturers name clearly written on the drums.

2.2 MATERIAL

MV CABLES : MV Cables shall be FR XLPE PVC insulated aluminum conductor armored and unarmored cables conforming to IS: 1554 (part I&II)-1976 & IS : 694-1977 (PVC Insulated cables for working voltages up to and including 1100 volts (second revision) with latest amendments. MV cables shall be suitable for underground use and laid in trenches, ducts, cable trays, under roads and paved areas. MV Cables shall be termite resistant and shall be of approved make.

2.3 JOINTS IN CABLES

The contractor shall take care to see that all the cables are apportioned to various locations in such a manner as to ensure no straight joints in the cable run. If the straight joint in cable is unavoidable due to any specified reasons, prior permission in writing shall be obtained from the Consultant before the use of such straight joints in cable.

2.3 JOINTING BOXES FOR CABLES

Cable jointing boxes shall be of appropriate size, suitable for PVC insulated cables of particular voltage ratings, and shall be manufactured by approved manufacturers.

2.5 JOINTING OF CABLES

All cable joints shall be made in suitable approved cable joint boxes. Jointing of cables in the joint boxes and the filling in of compound shall be done in accordance with the best practice in trade, in accordance with manufacturer's instructions and in an approved manner. All straight Joints shall be done in epoxy mould boxes with TROPOLIC/ M-Seal resin or approved equal. All terminal ends of conductors shall be heavily soldered upto at least 50mm length.

All cables shall be jointed colour to colour and tested for insulation resistance and continuity before jointing commences. The seals of cables must not be removed until preparations for jointing are completed. Joints shall be finished on the same day as commenced and sufficient protection from the weather shall be arranged.

2.7 FILLING OF EPOXY COMPOUND

Equal quantities of resin and hardener shall be taken and mixed thoroughly by hand until the mixture is free from white patches and has uniform colour. No water, oil or any other liquid shall be added to the mixture to make it soft as this will affect the properties of the compound. The mixture shall be used within 30-40 minutes of mixing. The surface on which epoxy compound is to be used shall be free from dust, rust, oil, grease and shall be dry. No disturbance or movement of joint shall be made till the epoxy compound has completely hardened. A smooth surface can be made by rubbing a damp cloth smoothly on the compound before it sets. The joints shall be painted after it has completely hardened.

2.7 CABLES TERMINATION

Cable termination shall be done in terminal cable box using cable glands and the cable ends sealed with sealing compound.

2.8 BONDING OF CABLES

Where a cable enters any piece of apparatus, it shall be connected to the casing by means of an approved type of armored clamps and gland. The clamps must grip the armoring firmly to the gland or casing, so that in the event of ground movement no undue stress is passed on to the cable conductors. The glands shall be either to the lead sheath by means of 'Plumbing Joint' as on a cone of approved materials, capable of being compressed into lead sheath. The gland or cone shall be capable of effecting a good electrical bond between both the armoring and lead of the cable and the casing.

2.9. LAYING OF CABLES

Cables shall be laid by skilled and experienced workmen using adequate rollers to minimize stretching of the cable. The cable drums shall be placed on jacks before unwinding the cable. Great care shall be exercised in laying cable to avoid forming kinks. The drums shall be unrolled, and cables run over wooden rollers in trenches at intervals not exceeding 2 meters. Cables shall be laid at depth of 750mm depth below ground level in the case of MV Cables. A cushion of sand, not less than 75mm shall be provided both above and below the cable, joint boxes and other accessories. HV and MV cables shall not be laid in the same trench and/or alongside of water main. The cable shall be laid in excavated trench 80mm layer of sand shall be spread over the cable. The cable then shall be lifted and placed over the sand bed. The second layer of 80mm sand then be spread over the cable. The relative position of the cables laid in the same trench shall be preserved and the cables shall not cross each other as far as possible. At all changes in direction in horizontal and vertical planes, the cable shall be bent smooth with a radius of bend not less than 12 times the diameter of cable. Minimum 3 M long loop shall be provided at both sides of every straight joint and 5 Meters at each end of the cable. Distinguishing marks shall be made on the cable ends for identification. Insulation tapes of appropriate voltage and in red, yellow and blue colors shall be wrapped just below the sockets for phase identification. Aluminum Labels etched with the size of cable shall be provided around the two ends of each cable.

2.10. PROTECTION OF CABLES

The cable shall be protected by placing burnt bricks over the cables 600mm wide on the top layer of sand for the full length of underground cable. Where more than one cable is running in the same trench, the bricks shall cover all the cables and shall project a minimum of 80mm on either side of the cable.

Cable under road crossings and any surfaces subjected to heavy traffic, shall be protected by running them through Hume pipes of suitable size and Heavy grade quality.

Cables under paved areas (which form part of the building) shall be protected by running them through Stoneware/Hume pipes of 150 mm dia(minimum size) one meter below road level.

2.11. CABLES INSIDE BUILDINGS

Cables inside buildings shall be laid either in masonry trenches or carried on through trays or brackets. Where cables run in ducts inside the buildings the cables shall be adequately clamped to angle iron brackets, secured to the wall, as directed and approved by the Consultant. Where cables are suspended from ceilings, they shall be carried over troughs or trays as directed and approved by the Consultant. The supports shall be placed not more than 1.0 meter apart. All cables passing through walls below paved area, and concrete shall run through stone ware pipes or Hume pipes of adequate diameter recessed or exposed as directed. Cables running along walls shall be supported and clamped to saddles, or hanger rigidly anchored at close intervals. Clear space between parallel cables shall be equal to the diameter of the cable but not less than 50mm. Where called for cable trenches shall be filled with fine sand. The contractor shall ensure that hangers, brackets and other supporting arrangements for cables are placed in proper position at the time of building the walls, concreting slabs, etc. cutting holes or opening in concrete may be carried out only with prior permission of the Consultant.

All excavations and back fill including timbering, shoring and pumping required for the installation of the cables shall be carried out as per the drawings and requirements laid down elsewhere. Trenches shall be dug true to line and grades. Back fill for trenches shall be filled in layers not exceeding 150mm. Each layer shall be properly rammed and consolidated before laying the next layer. The Contractor shall restore all surfaces roadways, sidewalks, curbs, walls or other works cut by excavation of their original condition, to the satisfaction of Consultant.

2.12. MARKERS AND WARNING PLATES

Approved CI cables markers shall be provided along the route of the cables at every 30-meter distance and at both ends of road crossing, indicating HV cables and MV cables as applicable. Special CI markers shall be provided at all buried cable joints indicating “Electrical Cable Joints. GI plates engraving the size of cable and the place it serves shall be tied to the cable at regular intervals of 2 meters for easily identification of the cables.

2.13. TESTING OF CABLES

Prior to burying of the cables, following tests shall be carried out:

a. Insulation test between phases and phase to earth for each length of cable before and after jointing.

On completion of cable laying work and jointing the following tests shall be conducted in the presence of the Consultants.

a. Insulation Resistance test (Sectional and Overall)
b. Continuity Resistance Test.
c. Sheath continuity Test.
d. Earth Test.
e. Physical Dimensions Test.

All tests shall be carried out in accordance with relevant Indian Standard Codes of practice and Indian Electricity Rules. The contractor shall provide necessary instruments, equipment and labour for conducting the above test and shall bear all expenses in connection with such tests. All tests shall be carried out in the presence of the Consultant / Consultant.

3.0 EARTHING

3.1 EARTHING

All the non-current metal parts of electrical installation shall be earthed properly. All metal conduits, trunking, cable sheaths, switchgear, outlet boxes, distribution boards, light fittings, fans and all other parts made of metal or conductive material shall be bonded together and connected by means of specified earthing system. All earthing will be in conformity with the relevant provision of Rules 33 and 61 of the Indian Electricity Rules 1956 and Indian Standard Specifications IS: 3043-1987 with latest amendments.

3.2. EARTHING CONDUCTORS

All earthing conductors shall be of high conductivity electrolytic copper of 99 % purity and shall be protected against mechanical injury or corrosion.

3.3. SIZING OF EARTHING CONDUCTORS

The cross-sectional area of copper earthing conductor shall be same as the active conductor for sizes of active copper conductor upto 4.0 sqmm and shall be half the size for 16 sq mm active copper conductor and above. All fixtures, fans, outlet boxes and junction boxes shall be earthed with 1.5 sq mm PVC Insulated copper conductor wires. All power sockets and single-phase A/C units shall be earthed with 4.0 PVC Insulated copper conductor wires. All Three phase Final Distribution Boards shall be earthed with 2 no's 4 mm dia bare copper conductor wires. The sizes of the earth continuity conductors should not be less than half of the largest current carrying conductors.

The Sub-Distribution Board shall be earthed to 2 no's 600mm x 600mm x 3mm copper plate earthing stations through 25m x 3 mm copper strips.

3.4. CONNECTION OF EARTHING CONDUCTORS

Main earthing conductors shall be taken from the earth connections at the main switchboards to an earth electrode with which the connection is to be made. Submariner thing conductors shall run from the main switchboard to the sub-distribution boards. Final distribution boards earthing conductors shall run from sub-distribution boards.

3.5. PROHIBITED CONNECTIONS

Neutral conductor, sprinkler pipes, or pipes conveying gas, water, or inflammable liquid, structural steel work, metallic enclosures or cables and conductors, metallic conduits and lightning protection system conductors shall not be used as a means of earthing an installation or even as a link in an earthing system. The electrical resistance of metallic enclosures for cables and conductors measured between earth connections at the main switchboard and any other point on the completed installation shall be low enough to permit the passage of current necessary to operate fuse or circuit breakers and shall not exceed 1 ohm.

3.6. PROTECTION FROM CORROSION

Connections between copper and galvanized equipment shall be made on vertical face and protected with paint and grease. Galvanized fixing clamps shall not be used for fixing earth conductors. Only copper fixing clamps shall be used for fixing earth conductors. When there is evidence that the soil is aggressive to copper, buried earthing conductors shall be protected by suitable serving and sheathing.

3.7. EARTHING STATION

Plate Electrode Earthing: Earthing electrode shall consist of a tinned copper plate not less than 300mm x 300mm x 3mm thick as called for in the Schedule. The plate electrode shall be buried as far as practicable below permanent moisture level but in any case, not less than 4.2 meters below ground level. Wherever possible earth electrodes shall be located as near the water tap, water drain or a down take pipe as possible. Earth electrodes shall not be installed in proximity to a metal fence. It shall be kept clear of the buildings foundations and in no case shall it be nearer than 2 meters from the outer face of the wall. The earth plate shall be set vertically and surrounded with 150mm thick layer of charcoal, dust and salt mixture. 20mm GI pipe shall run from the top edge of the plate to the ground level. The top of the pipe shall be provided with a funnel and a mesh for watering the earth through a pipe. The funnel over the GI Pipe shall be housed in a masonry chamber, approximately 300mm x 300mm x 300mm deep. The masonry chamber shall be provided with a cast iron cover resting over a GI frame embedded in masonry. Refer Sketch for additional details.

Pipe Electrode Earthing: Earthing electrode shall consist of a GI Pipe (class 'A') Indian Tube Company make or approved equal not less than 40mm dia and 4.5 meters long. GI Pipe electrode shall be cut tapered at the bottom and provided with holes of 12mm dia drilled at 75mm interval upto 2.5 meters length from bottom. The electrode shall be buried vertically in the ground as far as practicable below permanent moisture level with its top not less than 1.25 M below ground level. The electrode shall be in one piece and no joints shall be allowed in the electrode. Wherever possible earth electrodes shall be located as near water tap, water drain or a down take pipe. Earth electrodes shall not be located in proximity to a metal fence. It shall be kept clear of the building foundations and in no case shall be nearer than 2 meters from the outer face of the wall. Refer Sketch for additional details.

The pipe earth electrode shall be kept vertically and surrounded with 150mm thick layer of charcoal dust and salt mixture upto a height of 2.5 meters from the bottom. At the top of the electrode a funnel with a mesh shall be provided for watering the earth. The main earth conductors shall be connected to the electrode just below the funnel, with proper terminal lugs and check nuts. The funnel over the GI pipe and earth connection housed in a masonry chamber, approximately 350mm deep. The masonry chamber shall be provided with a cast iron cover resting over a CI frame embedded in masonry.

3.8. EARTH CONNECTION

All metal clad switches and other equipment carrying single phase current, shall be connected to earth by a single connection. All metal clad switches carrying medium voltage and high voltage shall be connected with earth by two separate and distinct connections. The earthing conductors inside the building wherever exposed shall be properly protected from mechanical injury by running the same in GI Pipe of adequate size.

Earthing conductors outside the building shall be laid 600mm below the finished ground level. The over lapping in copper strips at joints where required, shall be minimum 75mm. The joints shall be riveted and brazed with copper rivets and greased in approved manner. Sweated lugs of adequate capacity and size shall be used for all termination of wires above 1 Sq mm size and bare copper wire above 2.0mm dia. Lugs shall be bolted to the equipment body after the metal body is cleaned of paint and other oily substance and properly tinned. The earth wires entering the Final Distribution Boards shall be terminated with copper sockets crimped to its ends and tightened to the terminal with the help of flat end brass screws.

3.9. EARTH RESISTANCE

The earth resistivity of the soil where the earthing stations are located shall be submitted to the Consultant before the earthing work starts and get the approval of the Consultant/Owner. If the earth resistance is too high and multiple electrode earthing does/not give adequate low resistance to earth, than the soil resistivity immediately surrounding the earth electrodes shall be reduced by adding sodium chloride, calcium chloride, sodium carbonate, copper sulphate, salt and soft coke or charcoal in suitable proportions as directed by the consultants.

3.10. RESISTANCE TO EARTH

The resistance of each earth system shall not exceed 1.0 ohm in the case of Medium Voltage system and 0.5 ohm in the case of High Voltage system.

4 TESTING

- **GENERAL**

On completion of the work the entire installation shall be subject to following tests:
a) Wiring Continuity Test
b) Insulation Resistance Test
c) Earth Continuity Test
d) Earth Resistively Test
Besides the above any other test specified by the local Authority shall also be carried out.
All tested and calibrated instruments for testing, labour, materials and incidentals necessary to conduct the above tests shall be provided by the Contractor at his own cost.

- **TESTING OF WIRING**

All wiring systems shall be tested for continuity of circuits, short circuits and earthing after wiring is complete and before energizing. The Test Certificates for the complete wiring shall be submitted in the Format and the Total Electrical Installation shall be got approved by the Electrical Inspector.

- **INSULATION RESISTANCE TEST**

The insulation resistance shall be measured by applying between earth and the whole system of conductors, or any section thereof with all fuses in place and all switches closed (except in concentric wiring) all lamps in position of both poles of the installation, otherwise electrically connected together, a direct current pressure of not less than twice the working pressure (provided that it does not exceed 660 volts for medium voltage circuits) be applied. Where the supply is derived from A.C. three phase systems, the neutral pole of which is connected to earth, either direct or through added resistance, pressure shall be deemed to be that which is maintained between the phase conductor and the neutral. The insulation resistance measured as above shall not be less than 50 divided by the number of points on the circuit provided that the whole installation shall not be required to have an insulation resistance greater than one mega ohm. The insulation resistance shall not be measured between all conductors connected to one phase conductor of the supply and all the conductors connected to the middle wire or to the neutral or to the other phase conductors of the supply. Such a test shall be carried out after removing all metallic connections between the two poles of the installation and in these circumstances the insulation resistance between conductors of installation shall not be less than that specified above.

The insulation resistance between the case of frame work of housing and power appliances, and all live parts of each appliance shall not be less than that specified in the relevant Indian Standard Specifications or where there is no such specification shall not be less than half a mega ohm.

- **TESTING OF POLARITY OF NON-LINKED SINGLE POLE SWITCHES**

In a two wire installation a test shall be made to verify that all non-linked single pole switches have been fitted in the same conductor throughout, and such conductor shall be labeled or marked for connection to an outer or phase conductor or to the non-earthed conductor of the supply. In the three or four wire installation a test shall be made to verify that every non-linked single Pole switch is fitted in a conductor to one of the outer or phase conductor of the supply. The entire electrical installation shall be subject to the final acceptance of the Consultant as well as the local authorities.

4.5. EARTH RESISTIVITY TEST

Earth resistivity test shall be carried out in accordance with Indian Standard code of practice for earthing IS: 3043:1987. All tests shall be carried out in the presence of the Consultant/Owner.

4.6 TEST CERTIFICATES

The Electrical Installation shall be tested as per relevant Indian Standards and Test Certificate to this effect shall be submitted to the Owner. The Contractor has to get the Total Electrical Installation approved by the Electrical Inspector and the permission to energize the same shall be submitted to the Owner.

5 SAFETY REQUIREMENTS

5.1 **SCOPE**

This section covers the requirements of items to be provided in the sub-station for compliance with statutory

regulations, safety and operational needs.

5.2 **REQUIREMENTS**

Safety provisions shall be generally in conformity with the relevant Indian Standards and I.E. Rules and Regulations. In particular the following items shall be provided.

(a) Insulation Mats

Insulation Mats conforming to IS: 5424-1969 shall be provided in front of main switch boards and other control equipment as specified.

(b) First Aid Charts and First Aid Box

Charts (one in English, one in Hindi, one in Regional language), displaying methods of giving artificial respiration to a recipient of electrical shock shall be prominently provided at appropriate place. Standard First Aid Boxes containing materials as prescribed by St. John Ambulance brigade or Indian Red Cross should be provided in each sub-station.

(c) Danger Plate

Danger plates shall be provided on HV and MV equipment's. MV danger notice plate shall be 200mm x 150mm made of mild steel at least 2mm thick vitreous enameled white on both sides and with inscriptions in signal red colour on front side as required.

(d) Fire Extinguishers

Portable CO2 conforming to IS: 2878-1976 dry chemical conforming to IS 2171-1976 extinguishers shall be installed in the sub-station at suitable places as specified.

(e) Fire Buckets

Fire buckets conforming to IS: 2546-1974 shall be installed with the suitable stand for storage of water and sand.

(f) Toolbox

A standard toolbox containing necessary tools required for operation and maintenance shall be provided in sub-station.

(g) Caution Board

Necessary number of caution boards as "Man online" "Don't switch on' etc. shall be available in the sub-station.

(h) Keyboard

A key board of required size shall be provided at a proper place containing castel key, and all other keys of sub-station and allied areas.

6.0 M V PANELS, SUB-DISTRIBUTION BOARDS & FINAL DISTRIBUTION BOARDS

6.0 The PANELSs shall be suitable for operation on 3 phase, 4 wire, 415 Volts, 50 cycles, neutral grounded at transformer and short circuit level not less than 31 MVA at 415 volts.

The PANELS shall comply with the latest edition of relevant Indian Standards and Indian Electricity Rules and Regulations. All PANELSs shall be fabricated by the contractor by using specified components as per the specifications given below:

6.1. CONSTRUCTION FEATURES

The PANELS shall be metal enclosed sheet steel cubical, indoor, dead front, floor mounting type. The distribution boards shall be totally enclosed, completely dust and vermin proof. Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof. PANELSs shall be preferably arranged in multitier formation.

All doors and covers shall be fully gasket with foam rubber and/or rubber strips and shall be lockable. All MS sheet steel used in the construction of PANELSs shall be 2mm thick and shall be cut to different sizes and bolted as necessary to provide a rigid support for all components. Joints of any kind in sheet metal shall be bolted type and not welded type.

All covers shall be properly fitted and square with the frame, and holes in the PANELS correctly positioned. Fixing screws shall enter into holes tapped into an adequate thickness of metal or provided with hank nuts. Self-threading screws shall not be used in the construction of PANELSs. A base channel of 75mm x 40mm x 5mm thick shall be provided at the bottom. A minimum of 200 mm between the floor of MV PANELS & Distribution board and lower most unit shall be provided. The PANELS shall be of adequate size with a provision of 20% spare space to accommodate possible future additional switchgear in addition to spare feeders.

Knockout holes of appropriate size and number shall be provided in the PANELSs in conformity with the location of incoming and outgoing cables.

PANELSs shall be provided with removable aluminum plates at top and bottom to drill holes for cable entry at site.

The PANELSs shall be suitable for IP 42 protection.

6.2. CIRCUIT COMPARTMENTS

Each circuit breaker, MCCB and switch fuse units shall be housed in separate compartments and shall be enclosed on all sides. Sheet steel hinged lockable door shall be duly interlocked with the ACB/MCCB/switch fuse unit in 'on' and 'off' position. Safety interlocks shall be provided for air circuit breakers to prevent the breaker from being drawn out when the breaker is in 'on' position. The door shall not form an integral part of the draw out position of the ACB. All instruments and indicating lamps shall not be mounted on the ACB compartment door. Sheet steel barriers shall be provided between the tiers in a vertical section. The Knobs for holding the cubicle door in closed position shall be spring operating rotating type and not screwed type.

6.3. INSTRUMENT ACCOMMODATION

Separate and adequate compartments shall be provided for accommodating instruments, indicating lamps, control contractors and control fuses etc. These shall be accessible for testing and maintenance without any danger of accidental contact with live parts of the circuit breaker, bus bar and connections.

6.4. BUS BARS & BUS BAR CONNECTION

The bus bar and interconnections shall be of electrolytic Copper of 99.9 % purity of rectangular cross sections suitable for full load current for phase bus bars and full rated current for neutral bus bar and shall be extendible on either side. Minimum 200 Amps capacity bus bars shall be provided in the distribution boards. The bus bars and interconnections shall be insulated with PVC heat shrinking sleeves and colour coded. The bus bars shall be supported on unbreakable, non-hygroscopic insulated SMC supports at regular intervals to withstand the forces arising from short circuit in the system. All bus bars shall be provided in a separate chamber and properly ventilated. The current density of copper shall not be more than 1.6 Amps per sq.mm cross sectional area of Bus bar. If Aluminum bus bars are provided the current density of Aluminum shall not be more than 0.8 Amps per sq. mm cross section of Aluminum bus bar. Maximum all wobble temperature for the Bus bar to be restricted to 85^0 C.

All bus bar connections in PANELS shall be done by drilling holes in bus bars and connecting by cadmium plated M.S. bolts and nuts. 20% Additional cross section of bus bars shall be provided in all distribution boards to cover up the holes drilled in the bus bars. Spring and flat washers shall be used for tightening the bolts.

Automatically operated safety shutters to screen the live cluster when the breaker is withdrawn from cubicle are to be provided.

All connections between bus bars and switches and between switches and cable alley terminals shall be through solid copper strips of proper size to carry full rated current and insulated with PVC heat shrinking sleeves. All the PANELSs shall be completely factory wired, ready for connection. All the terminals shall have adequate current rating and size to suit individual feeder requirements. Each feeder shall be clearly numbered from left to right to correspond with wiring diagram. All the switches and feeders shall be distinctly marked with a small description of the service installed. Minimum width of bulbar Alley shall be 300 mm and that of cable alley shall be 600 mm.

6.5. TERMINALS

The outgoing terminals and neutral link shall be brought out to a cable alley suitably located and accessible from the PANELS front. The current transformer for instruments metering shall be mounted on the terminal blocks. Cable compartments shall be provided for incoming and outgoing cables with suitable bus bar extension and supports.

6.6. WIREWAYS

A horizontal wire way with screwed covers shall be provided at the top to take interconnecting control wiring between different vertical sections.

6.7. CABLE COMPARTMENTS

Cable compartment of adequate size shall be provided in the PANELSs for easy termination of all incoming and outgoing cables entering from bottom or top. Adequate proper supports shall be provided in cable compartments to support cables. All incoming and outgoing switch/MCCB's terminals shall be brought out to terminal blocks in the cable compartment. The switch board shall have in each PANELS thermostatically controlled space heaters/ ventilation fans.

6.8. METERS

All meters shall be housed in a separate compartment and accessible from front only. Lockable doors shall be provided for the metering compartment. The details of other meters and indicating lamps are as described in each switch board and neutral selector switch of appropriate range and scale. Wiring for meters shall be colour coded and labeled with approved plastic ferrules for easy identification. All meters shall be digital.

6.9. CURRENT TRANSFORMERS

Where ammeters are called for CT's shall be provided for current measuring more than 60 Amps. Each phase shall be provided with separate current transformer of accuracy class I and suitable V.A. Burden for operation of associated metering and Relays. Current transformers shall be in accordance with IS:2705-1964 as amended upto date and Cast Resin Type. Tape wound CTS are not acceptable. The name plate of CT's. Shall be fixed in such a way it can be easily readable without dismantling.

6.10. INDICATING PANELS AND METERING EQUIPMENT

All meters and indicating instruments shall be accordance with relevant Indian Standards. The meters shall be flush mounted and draw out type. Indicating lamps shall be neon type and of low burden. Indicating lamps shall be backed up with fuses of 5 Amps and toggle switch.

6.11. EARTHING

Copper earth bars of 25mm x 3mm shall be provided for all PANELS for the full length and connected to the framework of the PANELS.

Provision shall be made for connection from this earth bar to the main earthing bar on both sides of the PANELS.

6.12. PAINTING

All sheet steel work shall undergo a process of degreasing pickling in acid, cold rinsing, and phosphate, passivating and then sprayed with a high corrosion resistant primer. The primer shall be baked in an oven. The finishing paint treatment shall be by powder coating.

6.13. LABELS

Engraved anodized aluminum labels shall be provided on all incoming and outgoing feeder switches. Circuit diagram showing the control wiring shall be pasted on inside of the PANELS door and covered with transparent laminated plastic sheet. The Label shall indicate the name of the feeder, the specific area it is feeding, ampere rating and the cable size it is receiving. The Labels shall be provided on the backside of the PANELS in case of back access.

All the PANELSs shall be subject to tests specified in relevant Indian Standards and test certificate shall be furnished.

6.14. SHOP DRAWING

Before fabricating the PANELs the contractor has to submit shop drawing showing the general arrangements, bill of materials and the wiring diagram for all the PANELSs to the Consultant and get approval from the Consultant.

6.15. INSPECTION

At all reasonable times during production and prior to shipment of equipment the contractor shall provide and secure for Consultant/ Owners representative every reasonable access and facility at their plant for inspection.

6.16. TEST CERTIFICATES

Testing of PANELSs shall be carried out at factory and at site as specified in Indian Standards. The test certificates for the tests carried out at factory shall be submitted in duplicate.

6.17 MINIATURE CIRCUIT BREAKER (MCB)

Miniature circuit breaker shall be quick make and break type and confirm with Indian Standards IS: 8828 – 1978 (Specifications for Miniature Air Break Circuit breakers for voltage not exceeding 1000V) the housing of MCB's shall be heat resistant and having high impact strength. The fault current of MCB's shall not be less than 9000 Amps at 230 volts. The MCB's shall be flush mounted and shall be provided with trip free manual operating mechanism "ON" and "OFF" indications.

The MCB contacts shall be silver nickel and silver graphite alloy coated with silver. Proper arc chutes shall be provided to quench the arc immediately. MCB's shall be provided with magnetic fluid plunger release for over current and short circuit protection. The overload or short circuit devices shall have a common trip bar in the case of DP and TPN Miniature circuit breakers. The MCB shall be tested and certified as per Indian Standards prior to installation.

6.18 LV MCCB (Mounded Case Circuit Breakers)

6.18.1 General

Molded case circuit breakers shall be incorporated in the switch board wherever specified. MCCB shall conform to the latest IEC 60947-Part 1&2 & IS 13947:1993 in all respects.

- They shall be of Category A with a rated service breaking capacity (Ics) rating.
- MCCBs shall be available in fixed or plug-in/with draw able versions as well as in 3-pole and 4-pole versions. For plug-in/withdraw able versions, a safety trip shall provide advanced opening to prevent connection and disconnection of a closed-circuit breaker.
- MCCBs shall be designed for both vertical and horizontal mounting, without any adverse effect on electrical performance. It shall be possible to supply power either from the upstream or downstream side
- MCCBs shall provide class II insulation (according to IEC 60664-1 standard) between the front and internal power circuits.
- Rated insulation voltage shall be 750V AC (50/60 Hz).
- The circuit breaker shall comply with the isolation function requirement of IEC 60947-2 section 7.1.2 to marked as suitable for isolation/disconnection to facilitate safety of operating personnel while the breaker is in use.
- All MCCBs required as per BOQ shall have Ics – rating not Icu rating.

6.18.2 Construction

- For maximum safety, the power contacts shall be insulated in an enclosure made of a thermosetting material from other functions such as the operating mechanism, the case, the trip unit and auxiliaries.

- The operating mechanism of MCCBs shall be of the quick-make, quick-break type with fault tripping overriding manual operation. All poles shall operate simultaneously for circuit breaker opening, closing and tripping

- MCCBs shall be actuated by a toggle or handle that clearly indicates the three positions: ON, OFF and TRIPPED in order to ensure suitability for isolation complying with IEC 60947-2

- The operating mechanism shall be designed such that the toggle or handle can only be in OFF position if the power contacts are all actually separated, in OFF position, the toggle or handle shall indicate the isolation position. Isolation shall be provided by a double break on the main circuit

- MCCB shall be equipped with a "push to trip" button in front to test operation and the opening of poles.

6.18.3 Current Limiting, Discrimination & Endurance

- MCCBs shall comprise a device, designed to trip the circuit-breaker in the event of high-value short-circuit currents. This device shall be independent of trip unit.

- The electrical endurance of MCCBs, as defined by IEC 60947-2 standard, shall be at least equal to 3 times the minimum required by the standard

- The MCCB shall employ maintenance free double break contact system to minimize the let-through energies and capable of achieving discrimination up to the full short circuit capacity of the downstream MCCB. The manufacturer shall provide both the discrimination tables (with test certificates) and let-through energy curves.

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6.18.4 Accessories

1. MCCB shall be provided with the following accessories, as specified in schedule of quantities.
   i) Under voltage trip
   ii) Shunt trip
   iii) Alarm switch
   iv) Auxiliary switches

   2. All the accessories shall be rated for continuous operation. These Auxiliaries shall be common for the similar type and range of MCCBs.

3. It should be possible to fit MCCBs with a motor mechanism for electrically controlled operation.

6.18.5 Interlocking

Moulded, case circuit breakers shall be provided with the following interlocking devices.

a) Extended door handle.
b) Handle interlock to prevent unnecessary manipulations of the breaker.
c) Door interlock to prevent the door being opened when the breaker is in ON position.
d) Defeat-interlocking device to open the door even if the breaker is in ON position.

The MCCB shall be current limiting type and comprise of quick make – Break switching mechanism. MCCBs shall be capable of defined variable overload adjustment. All MCCBs shall have adjustable short circuit pick-up.

The trip command shall override all other commands.

6.18.6 Protection Functions Wherever Specified

- All the MCCBs shall be with microprocessor-based trip units with adjustable Overload & Short circuit protection. Earth fault/Earth leakage protection shall be provided in the MCCB.
- Trip units shall be fully interchangeable type and it should be possible to upgrade the trip unit anytime without any modifications in the installation.
- In case of overload, Pre alarm indication shall be provided on the MCCB.

- Trip units shall be adjustable, and it shall be possible to fit lead seals to prevent unauthorized access to the settings.
- Trip units shall comply with appendix F of IEC 60947-2 standard (measurement of rms current values, electromagnetic compatibility, etc.)
- Protection settings shall apply to all circuit breaker poles.

- Trip units shall be equipped with Thermal memory feature to reduce the stress on the installation in case of repetitive overloads.
- All electronic components shall withstand temperatures up to 125 °C.

6.18.7 Testing

a) Original test certificate of the MCCB as per IEC 60947-1 &2 or IS13947 shall be furnished.
b) Re-commissioning tests on the switch board PANELS incorporating the MCCB shall be done as per standard specifications.

7.11. BATTERY

Suitable rating ampere Hours 24 Volts DC sealed maintenance free batteries shall be provided for Fire Detection and Alarm System. The battery rating is indicative only. It shall be sized by bidder to cater to all momentary and short time loads in addition to supplying the continuously rated loads for a duration of 8 hours. However minimum size shall be 65 AH.

Battery Charger

Bidder shall furnish the battery charging system complete with all necessary accessories such as transformer, rectifier, switches, fuses, starters, contactors, ammeter, voltmeter, protections and other, devices for trouble free operation.

Construction features

Housing of battery charger shall be 2 mm thick CRCA steel sheet cabinet for indoor installation and shall be floor mounted type. The cabinet shall be folded and braced as necessary to provide a rigid support for all components. Louvers shall be provided in the cabinet for ventilation. PVC sheets of 3 mm thick shall be provided on the selves on which the batteries are to be placed.

Input

240 volts AC 50 cycles, single phase with tapings of 0-200-220-240-260 volts on the primary side of the transformer.
Output

DC output shall be 24 volts. DC bridge rectifier shall be of silicon type, having full wave rectification. Suitable contactor, relay, reset shall be provided as required.

7.12 CABLES

All PVC insulated FRLS copper conductor stranded cables shall be 650 volts grade and shall generally conform to IS-1554-1988 and meet the signal cabling requirement of the system manufacturer.

Strands of cables shall not be cut to accommodate & connect to the terminals. Terminals shall have sufficient cross-sectional area to take all the strands.

Cables shall be laid by skilled and experienced workmen using adequate rollers to minimize stretching of the cable. The cable drums shall be placed on jacks before unwinding the cable. Great care shall be exercised in laying cables to avoid forming kinks. At all changes in direction in horizontal and vertical planes, the cable shall be bent smooth with a radius as recommended by the manufacturers. All cables shall be laid with minimum one diameter gap and shall be clamped at every metre and shall be tagged for identification with aluminium tag and clamped properly. Tags shall be provided at both ends and all changes in directions both sides of wall and floor crossings. All cable shall be identified by embossing on the tag the size of the cable, place of origin and termination.

These shall be measured on linear basis including the fittings required like, end termination junction box.

8.3 PUBLIC ADDRESS DEVICES
8.3.1 Speakers:

All speakers shall operate on 25 VRMS or with field selectable output taps from 0.5 to 2.0 Watts.

Speaker in corridors and public spaces shall produce a nominal sound output of 84 dBA at 3 meters.
Frequency response shall be a minimum of 400 HZ to 4000 HZ.

The back of each speaker shall be sealed to protect the speaker cone from damage and dust.

- Fixed Emergency Telephone Handset

The telephone cabinet shall be painted red and clearly labeled as "Emergency Telephone". The cabinets shall be located where shown on drawings.
The handset cradle shall have a switch connection so that lifting the handset off of the cradle shall send a signal to the fire command center which shall audibly and visually indicate its on-line (off-hook) condition.
On activating the remote phone, the phone earpiece shall sound a telephone ring signal until the master handset is lifted.
The two-way emergency telephone system shall support a minimum of seven (7) handsets online without degradation of the signal.

POINT WIRING

The rates for all point wiring items shall include:

1. Conduits, Conduit specials, bushes and other fittings concealed or exposed as called for.
2. Embedding conduit and allied fittings including the outlet boxes in walls, floors etc., during construction and/or in chases including cutting chases and making good with cement mortar as necessary in the case of concealed conduit work.
3. Providing and fixing approved fixing devices, saddles and grouting the same as required for exposed conduits.
4. Fabrication and Supply of G. I. boxes for switches, ceiling fan hooks, Exhaust fans outlet and lighting fixtures with 1.6 mm thick sheet steel.
5. Providing and fixing junction boxes with 3mm Hylam or 3mm/5mm thick Perspex sheet cover duly painted from inside to match the colour of the walls. All Junction boxes shall be MS only.
6. All fixing accessories such as clips, brass screws/brass washer's awl plugs etc.
7. All work & material necessary (including circuit wiring from DB to first tapping point of each circuit with 2.5 sq. mm wires) in complete wiring of a switch circuit of any length from the distribution board to the following via the switch: a) Ceiling rose b) Connector c) Back plate d) Socket outlet e) Lamps Holder f) Any other terminal outlet boxes g) Ceiling fan and Exhaust fan.
8. Switch, socket outlet as called for.
9. Cable/wire as required up to lamp holder.
10. All metal boxes and boards concealed, or surface mounted including those required for housing fan regulators.
11. All accessories necessary to complete wiring as specified.
12. FRLS PVC Insulated stranded Copper conductor earth wire for fixtures, switch outlet boxes and third pin of 5/15 Amps. socket to common earth.
13. Painting all exposed M.S. conduits, outlet boxes and junction boxes.
14. M.S. conduit for concealed and exposed wiring.
15. 2 mm dia G.I. pull wires in conduit work, wherever necessary.
16. The switch plate shall be made of I.S.I. grade Urea Formaldehyde Molding powder. The base of the switches shall be made from high heat resistant phenol formaldehyde powder. The cost of switches shall include the cost of cover plates, cadmium fixing screws etc.
    The switches/sockets shall be rocker operated.
17. Separate Earth wire shall run along with each circuit both for power and light circuits.
18. Cutting of floor and making good for carrying conduits also.
19. Numbering of Circuits with ferrules for all circuits at both ends.
20. Providing 15 Amps capacity Bakelite terminal Blocks for terminating the phase, neutral and earth wire at each fixture location.

2. PVC insulated copper conductor wire ends before connection shall be properly soldered (at least 15 mm length) with special Cu solder for copper conductor or shall be properly crimped with copper lugs/sockets as the case may be. Strands of wires shall not be out for connecting to the terminals. All stands of wires shall be soldered at the end before connection. The connecting brass-screws shall have flat ends. All looped joints shall be soldered and connected through terminal block/connectors.
3. Provide embossing on the sockets engraving "UPS" and "RAW"

CONDUITING FOR TELEPHONE & COMPUTER SYSTEM

The rates for conduit work shall include:

1. All necessary specials and fittings.

2. M. S. inspection, junction and outlet boxes as required.

3. 3/5 mm thick Perspex sheet covers for inspection & junction boxes.

4. All fixing accessories such as clips, nails, brass screws/brass washers, etc.

5. 2 mm dia G.I. pull wires in conduit work, wherever necessary.

6. Providing and fixing approved saddle, hooks and grouting the same as required in the case of all exposed conduit work.

7. Embedding conduit and allied fittings including the outlet boxes in walls, floors etc., during construction and/or in chases including cutting chases and making good with cement mortar as necessary in the case of concealed conduit work.

8. Painting all inspection, junction and outlet boxes.

9. FRLS PVC conduit for concealed conduit wiring.

10. Painting of Hylam /Perspex sheet cover from inside to suit the colour of the surrounding wall with two coats of paint.

11. Supply and fabrication of MS Zinc passivity outlet boxes.

12. The outlet cover plate for Telephone outlets shall be made of I.S.I. grade Urea Formaldehyde Mounding powder. The cost of outlets shall include the cost of cover plates, cadmium fixing screws etc. also.

13. Numbering of wires on both ends of the wires for easy identification with PVC ferrules.

EARTHING

The rates for earthing items include:

1. All fixing accessories such as brass saddles, brass screws, raw plugs etc.

2. Jointing by riveting in case of copper earth strips (2 per joint) and by welding in case of GI strips.

3. Cutting chase, making holes and making good the same wherever required.

4. All masonry work including earth work for earthing stations, earthing tapes and wires.

5. Effecting adequate and proper interconnections.

6. Use of copper thimbles for all wire terminations in the Distribution Boards, switches and sockets.

CABLES, MAINS AND SUB-MAINS

The rates for all items of work shall include:

1. Embedding conduits and allied fittings in walls, floors, etc., during construction and/or in chases including cutting chases and making good as necessary in the case of concealed conduit work.

2. Providing and fixing approved saddles, hangers, trays etc., and grouting the same as required for exposed conduits where called for. Providing dash fasteners for the threaded MS down rods (primer coated) used for hanging the cable \trays.

3. Providing and fixing junction boxes with 5 mm thick ‘Hylam’ sheet covers.

4. Effecting adequate and proper connections at terminations.

5. Ensuring that provision is left in various buildings components and trenches as the work proceeds, for incorporation of cable supports at a later date.

6. Providing all fixing accessories such as clamping devices, nuts and bolts, screws etc.

7. Clamping to supports where laid in trenches.

8. Excavation of trenches and bringing the trenches to exact level as required.

9. Providing sealing compound, thimble, solder etc., at joints and terminations as called for.

10. Providing proper supports for cable terminal boxes as called for.

11. Wherever cables pass through walls, ceiling, paved area or below roads provide sleeves/ hume pipes and making good as necessary.

DISTRIBUTION BOARDS

The rates for the following items of work generally include:

1. The supporting rigid steel framework.

2. 1.6 mm thick MS boxes complete with dust proof and vermin proof covers and locking arrangements, mounted flush with surfaces.

3. All fixing accessories such as dash fasteners, bolts, nuts, screws, etc. as required.

4. Building into masonry/concrete work including all necessary cutting and grouting with cement mortar 1:2.

5. Effecting adequate and proper connections.

6. Effecting proper bonding to earth.

7. Painting/lettering on switches and distribution boards the location they serve and providing on each board its circuit diagram.

8. Touching up all damaged paint over exposed work with one coat of red oxide primer and two finishing coats of approved synthetic enamel paint.

9. Main Distribution Board and Final Distribution Boards shall be fabricated by Contractor with the specified equipment.

10. Provide 6 Amps. SP MCB for Light Points Circuits, 20 Amps. SP MCB for Power Circuits and 32 Amps. SP MCB for 1.5 Ton AC Unit.

SUPPLY & FIXING OF LIGHTING FIXTURES

The rate for fixing of lighting fixtures and fans shall include:

1. Receiving the fixtures from the Owner's stores and assemble the same at site and testing the fixture before fixing.

2. All components that may be required to make the installation complete in all respects such as:

   a. Suitable length of down rod, hanger and connecting wires, where called for.

   b. Wires for connecting the fixtures to the point through connector blocks.

   c. All wood and metal blocks to serve as base of fixtures.

   d. Bonding with common earth wires.

3. Drilling holes in supports where required.

4. Fixing clamps, GI bolts and nuts, clips, brass screws, dash fasteners and other fixing accessories as required, including leaving necessary provision for fixing at time of concreting.

5. Approved enamel painting for hanger rods, clamps and other components and fixing accessories as called for.

6. Testing and commissioning of all fixtures and fans after installation.

7. The lighting fixtures shall be suitable for 230 Volts, single phase 50 cycles A.C. supply system.

1. Incandescent lamps shall be 100 Watts (maximum) and fluorescent lamps shall be 18 watts and 36 watts.

9. Use G.I. suspenders and clamping to the slab with dash fasteners (4 per fitting), including turn buckle arrangements for adjustable heights for hanging. They should be the same suspenders as used for hanging the False Ceiling grid ceiling.

10. The contractor to mark the size of light fittings, speaker and fire alarm components on the false ceiling for the interior contractor to cut holes.

SPECIFICATIONS FOR SERVICES

- **General**

1.1 The drawings for services are diagrammatic but shall be followed as closely as actual construction permits. Any deviations from the drawings shall be in conformity with Consultant Ural and structural drawings. The dimensions designated by the manufacturers shall take precedence over the drawings.

- At completion of work the Contractor shall submit one set of tracings and two sets of prints of "As-Built-Drawings". These drawings shall, among others, include invert levels, pipe runs, diameters, location of valves, access panels, layout of equipment, piping connections and such other information for maintenance & future extensions. Guarantees given by manufacturers shall be assigned to the Employer along with names & addresses of manufacturers, suppliers and information about spare parts.
- All site test shall be carried out with prior intimation to the Bank Engineer / Consultant. All defects shall be rectified, and tests conducted again to the satisfaction of the Bank Engineer / Consultant. In addition to the test required by the specifications, the Contractor shall also conduct tests required by the Consultant and by the Municipal or other Authorities.
- All work shall be executed by competent and licensed persons. The contractor shall maintain liaison with Municipal and other controlling Authorities. He shall obtain their approvals and certificates as required by the bye – laws at appropriate stages.
- No cutting / chasing shall be done in load bearing structural members without prior approval of the Asstt. Engineer. Sleeves and openings shall be provided during the progress of construction in preference to cutting at later date.
- The Consultant may require typical mockup(s) to be installed in advance for approval. Undamaged materials from the mockup shall be allowed to be reused in the work.
- Unless otherwise described in the item CI / SCI pipes and fittings shall be a spigot and socket type.
- G.I. pipe spouts shall be paid as per item of G.I. pipes (internal work). Cutting and making good is included. The free ends may be skew cut.
- Wherever use of G.I. pipes is called for the same shall be medium class (class – B)
- **Materials:**

2.1 The materials shall conform to the specifications and in absence thereof to Indian Standards. The products should bear the ISI Mark.

2.2 The makes of materials for use in this work are broadly approved as per list given below. The Contractor shall, however, get particular makes and samples approved before ordering:

2.3 Notwithstanding any interim or final approval the Contractor remains responsible for satisfactory performance of all fittings & fixtures. The liability of the Contractor is not limited by any approval of the make of materials.

2.4 The rate of mirror includes extra packing piece of AC plain sheet, where required due to offset between plaster & glazed tiles surface.

Testing

- The sand cast iron soil, waste and vent pipes and fittings including joints shall be tested by pumping smoke into the pipe at the lowest end.
- All G.I pipes and fittings including joints shall be tested to hydraulic pressure of 6 kg / cm2 (60 meters) avoiding water hammer. The test pump having been stopped the test pressure should maintain without loss for at least half an hour. The pipes and fittings shall be tested in sections as the work of laying proceeds keeping the joints exposed for inspection during the testing.
- All stone ware pipes shall be tested with water pressure of 1.5m head of water at the highest point of the section under test.

SAFETY CODE

1. First aid appliances including adequate supply of sterilized dressing and cotton wool shall be kept in a readily accessible place.

2. An injured person shall be taken to a public hospital without loss of time, in cases when the injury necessitates hospitalization.

3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from the ground.

4. No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm. (clear) and the distance between two adjacent runnings shall not be more than 30 cm. When a ladder is used an extra mazdoor shall be engaged for holding ladder.

5. The excavated material shall not be placed within 1.5 meters of the edge of the trench half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.

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

7. No floor, roof or other part of the structure shall be so overloaded with debris or material as to render it unsafe.

8. Workers employed on mixing and handling material such as asphalt, cement, mortar, concrete and lime shall be provided with protective footwear and rubber hand gloves.

9 Those engaged in welding works shall be provided with welders' protective eye shield and gloves.

10. (i) No paint containing lead or lead products shall be used except in the form of paste readymade paint.
(ii) Suitable facemasks should be supplied for use by the workers when the paint applied in the form of spray or surface having lead paint dry rubbed and scrapped.

11. Overalls shall be supplied by the contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during cessation of work.

12 Hoisting machines and tackle used in the works including their attachments anchor and supports shall be in perfect condition.

13. The ropes used in hoisting or lowering material or as a means of suspension shall be durable quality and adequate strength and free form defects.

FORM OF AGREEMENT

ARTICLES of AGREEMENT made this_____day of_____year 2025 between the **Regional Manager, SBI** (Hereinafter referred to as the "Employer/Owner/client" which expression shall, unless excluded by or repugnant to the context, includes its successors and assigns)of the ONEPART and_____of_____(Here in after refer red to as "Contractor" unless excluded by or repugnant to the context, includes it successors and assigns)of the OTHERPART.

WHEREAS the Employer intends to carry out (Proposed Electrical Works for **Regional Business Office - IV, at Fourth Floor, Sheranwala Gate, The Mall, Patiala, Distt. Patiala. (Pb).** shall herein after referred to as "Project".

AND WHEREAS for the purpose of the above said project, the Employer invited sealed tenders from experienced, resourceful and bonafied contractors vide his Notice Inviting Tender (NO. _____dated.).

WHEREAS the contractor submitted his Tender Documents containing Notice Inviting Tender, General notes, General Conditions of Contract, Special conditions, Schedule of approximate quantities and rates , Form of Agreement, General Specification, Approved manufacturers/ natural source of materials, Declaration, Technical Specifications as in Schedule of Quantities etc. for the above said project, (Hereinafter collectively referred to as the "said conditions"), duly signed on each page as token of his acceptance of the same, along with requisite Cost of tender and Earnest Money Deposit

AND WHEREAS out of the tenders received, the Tender of the contractor was found to be most suitable for the project.

AND WHEREAS the Employer has accordingly issued the work order (NO. dt._____) to the contractor subject to his furnishing the requisite Security Deposit.

AND WHEREAS the Contractor has accepted the aforesaid Work Order vide his letter of acceptance NO._____dt._____And has also deposited with the Employer sum of Rs. _____which with the Earnest Money of RS._____Forms the requisite Security Deposit@ 2%ofthe accepted Tender Value of Rs._____.

NOW, therefore, it's hereby agreed to and between the parties as follows:
1) Contract documents
The following documents shall constitute the Contract Documents.
I. This Article of Agreement.
II. Tender Document submitted by the Contractor including the "said conditions", N.I.T and Schedule of quantity.
III. All correspondence between the Employer and the Contractor from the date of issue of N.I.T and the date of issue of work order.
IV. Work order No._____dt._____

2) In consideration of the payments to be made to the Contractor as hereinafter provided the Contractor shall upon and subject to the said conditions, execute and complete the contracted project works shown upon the said drawings etc. and such further detailed drawings as may be furnished to the contractor by the said Employer and described in the said Specifications and the said Schedule of Quantities.
3) Not with standing what are stated in the N.I.T conditions of Tendering, Conditions of Contract of herein stated before, the Employer reserves itself the right of altering the drawings and the nature of

the work and addition to or omitting any items of work or of having portions of same carried out departmentally or otherwise and such alterations or variations shall be carried out without prejudice to this contract.

4) As mentioned in Article 1 above, the "said conditions" shall be read and be treated as forming part of this agreement and parties hereto will respectively be bound thereby and to abide by and submit themselves to the conditions and stipulations and perform the same on their parts to be respectively observed and preferred.

5) Any dispute arising under this agreement shall be referred to the Arbitration in a manner specified in the General Conditions of the Contract and all legal disputes shall be limited within the territorial jurisdiction of the **Patiala** thereto. The decision of the arbitration shall be final and binding on both the parties.

INWITNESSWHEREOFTHEPARTIES to their present have here under set and subscribed their hands, the day, month and year first above written.

Signed and delivered for and on behalf of
State Bank of India, Shri._____its duly authorized official, In the presence of –
1. (Name and Address)

2. (Name and Address)

Signed and delivered for and on behalf of
The Contractor_____by Shri_____his duly authorized official, in the presence of –
1. (Name and Address)

2. (Name and Address)

The Regional Manager, SBI
READ, UNDERSTOOD AND ACCEPTED

SIGNATURE OF THE CONTRACTOR
WITH SEAL & DATE

DECLARATION

Regional Manager,
State Bank of India,
Regional Business Office – IV, Patiala,
Sheranwala Gate, The Mall,
Patiala – 147001, (Pb).

Name Of The Work: Proposed Electrical Works at Regional Business Office - IV, at Fourth Floor, Sheranwala Gate, The Mall, Patiala, Distt. Patiala. (Pb).

I/We_____have inspected the site of works and have made me / us fully acquainted with the local conditions in and around the sites of works. I/We hereby declare that I/We have gone through the conditions laid down in the Notice Inviting Tender, Conditions of Contract, Technical Specifications, Bill of Quantities, approved makes and understood the same and on the basis of the same I/We quoted our rates in the Schedule of Quantities attached with the tender documents.

We accept all the terms and conditions of tender documents. We will abide by the technical specification mentioned in the tender. We here by undertake to use only specified material/ make as per the tender schedule.

For any type of deviation (to any of above or subsequent instructions), it will be my/ our responsibility to obtain the written instruction of the Engineer-in-charge for the same failing which it shall be deemed that I have carried out any such deviations at my own and I shall be duty bound to replace the all deviated material/ works from the site at my/ our cost as well as I shall be liable to penalized by the employer as deemed fit and for all such loses made thereof, I/ we shall not have any right to arbitrate in any manner.

I/We shall also uniformly maintain such progress as may be directed by the Employer / Architect tonsure completion of same within the target date as mentioned in the tender document.

Witness: _____

Signature of Tenderer

Address_____

Date: _____

SCHEDULE OF APPROXIMATE QUANTITIES AND RATES

I. The quantities given herein are those upon which the lump sum cost of the work is based. They are subjected to alterations omissions, deductions or additions as provided for in the conditions of this contract and don't necessarily show the actual quantities of the work to be done. The unit rate noted below are those governing payment of extras or deductions for omissions, according to the conditions of the contract as set forth in the preliminary specifications of the Bank detailed standard specifications and other conditions or specifications of this contract.

II. It is to be expressly under stood that the measured work is to be taken net (not withstanding) any custom or practice to the contrary according to the actual quantities when in place and finished according to the drawings or as may be directed from time to time by the Architects, and the cost calculated by measurements or weight, at the respective prices, without any additional charge for any necessary or contingent works connected there with. The rates quoted are for working site and complete in every respects.

III. If any operation of work, which is specified in the respective items mentioned in the schedule of quantities, is not executed by the contractor then proportionately the rate quoted in the schedule shall be re-fixed.

SIGNATURE OF THE CONTRACTOR
WITH DATE

(For Electrical/ Networking Tenders)

Sr. No	Name of Various Items	Makes
(A)	Electrical Wiring / Cabling/ Earthing	
1	Wires	Havells/ RR Kable / KEI/Finolex
2	Copper/ Aluminium Power Cables	Havells/Polycab/Finolex/KEI/pymen
3	Telephone Cables	Delton/Finolex/Polycab
4	PVC Conduit	ISI Marked
5	MS Conduit	Anchor/North West ISI Marked
6	GI Pipe	ISI Marked
7	Switches/ Sockets (Modular)	Anchor/Crabtree/North-West/MK
8	Raceways	MK /North-West
9	Data cabling- Cat 5	Lucent/HCL/IBM/AMP/Krone/D- Link/ Molex
10	Information Outlets	Lucent/HCL/IBM/AMP/Krone/D-Link/ Molex/Legrand
11	Jack panel	Lucent/HCL/IBM/AMP/Krone/D-Link/ Molex/Digilink/Legrand
12	Network Switches	3 COM/INTEL/COMPAX/SMC/D-Link/ Lanbit/Digilink/Legrand
(B)	Main Panel/Distribution Board/ Switches etc.	
1	ELCB/RCCB	Indoasian/Hager/Legrand/L&T
2	MCB and Distribution boards, Metal Clad sockets and MCBs	Havells/HPL/Standard/ Hager/ Legrand/L&T
3	MCCBs	L&T/ABB/GE
4	Switch Fuse Unit/ Fuse Switch Unit	L&T/C&S/GE
5	Rewireable Switches	Havells/Standard/HPL
6	Change Over Switches	Havells/Standard/HPL/C&S
7	Kit Kats	Havells/Standard/GECO
8	Ammeter/Voltmeter	Automatic Electric/Rishab/Essma
9	Selector Switch	L&T/ Kay Cee/HPL
10	C/Ts	Automatic Electric/Rishab/Essma
11	Led indicators	L&T/C&S
12	Cable Glands	HMI/BBI/Commet
13	Lugs/Ferrules	Esscon/Jainson
14	Capacitors/for PF improvement	Asian/Epcos
(C)	ELECTRICAL FIXTURES	
1	Light Fittings 2`X2` Light Fittings With LED *ii.* 4`LightFittingwith T 5Lamps iii Downlighter - LED	 Philips/Bajaj/Wipro/Crompton Philips//Bajaj/Wipro/Crompton Philips/ Bajaj/Wipro/Crompton
2	Ceiling Fans . General Purpose . Energy Efficient Ceiling Fans	Crompton/Usha/Bajaj
3	Wall Fans	Havells/Crompton/Bajaj

AIR CONDITIONING LIST OF APPROVED BRANDS / MAKES

One of the following make of the material shall be used. The contractor will have to get the sample approved from the Consultant/ Bank's Engineer whose decision shall be binding on the contractor. The condition is also applicable for any material, not mentioned in the specification or schedule of work. No deviations are allowed in these even during/ after Tender.

GSS Sheet	:- Jindal / Tata / Sail
Factory Made Ducts	:-Rollastar / Nutech
Propeller fans	:-GE Alsthom / Crompton/ Carryaire
Flexible pipe connection	:-Resistoflex / Dunlop
Extruded Aluminum Grilles /Diffusers	:- Pine
air/Balance/Tristar/carryaire Firedampers / Volume Control Dampers	:-
Carryaire /Pine air/Balance/ Tristar Flexible insulated ducts	:-
CARYAIRE / ATCO/ MAPRO	
Fibre glass	:- OWENS CORNING/ UP TWIGA
Extruded Polystyrene Board	:- SUPREME
Cross linked polyethylene	:- SUPREME/A-Flex/Aeroflex
Class 'O' Nitrile rubber insulation	:- SUPREME /K-FLEX / SUPERLON / EUROBATEX / ARMACELL/A- Flex
Copper Pipe	:-RAJCO / MANDEV / MAXFLOW / Total Line / Shree Shayam
PVC PIPE	:- SETIA/ FINOLEX/ PRAKASH/ SURYA
Conduit of Electrical wires	:- AKG, SETIA, BEC
Expanded polystyrene	:- Styrene Packing / Indian Packing
Vibration Isolation Spring	:-Dunlop / Resistoflex
Paints	:-ICI / Asian
Dash Fasteners	:-Canon / Fisher / TKS/Hilti
Welding Rods	:-Advani / L&T
ACB, M.C.B. & MCCB	:- L&T / GE / Crompton
Power/Control Cable	:- ICC/ CCI/ Gloster / Grandlay/
Universal	
Centrifugal / AxialFans	:-ABB / Kruger / Comfrei / Nuaire (UK)
Inline Fans	:-Kruger / Nuaire / Ostberg / Systemair/ carryaire

NOTE: Above makes of equipment are approved subject to their meeting the specifications. The contractor however shall seek approval of specific make from Consultant/ Bank's Engineer before commencing the work. The decision of Consultant/ Bank's Engineer shall & binding on the contractor in this respect. Any other make of the equipment not specified shall be got approved by the Bank's Electrical engineer.

1 Samples of all items shall be approved by the Architect / Engineer in charge before use.

2 Work will be carried out as per tender specifications / drawings and instructions of Architect / Bank's Engineer.

3 Work shall be done as per CPWD / tender specifications / drawings & instructions of architect / Bank's Engineer & material shall be of the make as mentioned above, as per CPWD & of ISI mark.

4 Bank may ask for the bills / cash memo of various items purchased by the Contractor from the market, for its satisfaction.

2.0. Note: -

i) The contractor should obtain prior approval from Employer / Consultants before placing order for any specific materials. Employer may change / delete any of the makes or brands out of the above list.

ii) All materials should conform to relevant standards and codes of BIS. Materials with I.S.I. mark shall be used duly approved by the STATE BANK OF INDIA Engineer.

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